Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #601 (L) - October 2019

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX13	Box Compression Strength, Corrugated Boxes
202	EC12	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC12	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42F1	Mullen Burst of Linerboard, 42 lb Linerboard
207	35E1	Mullen Burst of Linerboard, 35 lb Linerboard
215	42F1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
217	35E1	Ring Crush of Linerboard, Rigid Platen Type, 35 lb Linerboard
223	42F1	STFI of Linerboard, 42 lb Linerboard
225	35E1	STFI of Linerboard, 35 lb Linerboard
228	42F	Roughness - Stylus Method, 42 lb Linerboard
229	42F1	Roughness - Sheffield Method, 42 lb Linerboard
231	42D	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	42F	Coefficient of Static Friction - Inclined Plane, 42 lb Linerboard
237	42D	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM11	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM11	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM11	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM11	STFI of Medium, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

The Interlaboratory Testing Program for Containerboard is operated and maintained by Collaborative Testing Services, Inc. (CTS), with technical guidance provided by the Containerboard Group of the American Forest & Paper Association. The tests are conducted on a monthly basis.

For these tests samples of linerboard and corrugating medium, that each have been separately randomized from narrow rolls, are distributed for testing weekly. One weight of medium (26 lb.) is used for Concora Flat Crush Strength, Corrugated Fluted Crush Strength, Ring Crush Strength, and STFI Compression. Two weights of linerboard are tested each month for Mullen Burst, Ring Crush, and STFI Compression: 42 lb. - every month; 36 lb. and 56 lb. - alternate months. The participants return their test results for analysis and receive a monthly report.

Please refer to the section, "EXPLANATION OF TABLES", for definitions of terms and guidelines to interpreting the results.

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

The samples of linerboard and corrugating medium, which have been randomized and placed in sealed packages for distribution in this program, may be used as collaborative reference materials. The values most representative of each material are the Cumulative Grand Means in the latest reports, given at the bottom right of each table. Comparisons can only be made within one lot of material; therefore check your measurements against the Cumulative Grand Means with the same lot code as on the packages being tested.

Material	Lot Code	Dates in Use
26 lb Corrugating Medium	CM11	April 2019-Current
	CM92	January 2018-March 2019
35 lb Linerboard	35E1	June 2017-Current
42 lb Linerboard	42F1	January 2019-Current
	42D3	November 2017-December 2018
56 lb Linerboard	56A2	January 2018-Current
	56A1	July 2016-November 2017

ABOUT CTS

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries, including rubber, plastics, fasteners and metals, containerboard, paper, color, and wine, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality control objectives. Labs from the U.S., as well as more than 80 countries, currently participate in the CTS programs.

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EXPLANATION OF TABLES

Each analysis is divided into three time spans. On the left side of the table are the individual laboratory results for each week of the month; in the center are each lab's statistical data for the month; and on the right are each lab's cumulative data for up to 16 weeks. At the bottom of the table are the consensus statistics for all the participants for each of the three time spans.

Definitions of Terms Used

Weekly Results

Laboratory Data

WebCode - A six character laboratory identifier used to maintain information on a confidential basis. The WebCode is unique for each cycle and will change for each report. Your WebCode can be found in your Individual Report (Current Month Performance Report) and your datasheet.

Weekly Means - The average of the test results obtained by the participant for each week that data were reported.

Consensus Data

Wk Mean - For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.

Avg SD - For each week, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SD is an indication of the variation of measurements within an average laboratory.

SD btwn Labs - For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.

Labs Incld - The number of laboratory Means included in the Wk Mean for that week.

Labs Excld - The number of laboratory Means reported but excluded from the Wk Mean for that week because of outlying results ('X' following Mean).

Labs not rcvd - The number of laboratories failing to report for that week.

Monthly Results

Laboratory Data

Mean - For each laboratory, the average of all the weekly Means reported for this month.

CPV - Comparative Performance Value, an indication of how well a laboratory's Mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean). The closer a laboratory's CPV is to zero, the more consistent its results are with the other participants' data.

SD - For each laboratory, the average of the weekly within-lab standard deviations (SD's) for all reported Weekly Means this month.

SD Wk - The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Consensus Data

Month Mean - The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for this month.

Avg SD - For the current month, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.

SD btwn Labs - For the current month, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.

SD btwn Group - For the current month, the standard deviation of the laboratory Means within the group about the Month Mean, excluding those laboratories flagged with an 'X'.

SD btwn Wks - For the current month, the average of the laboratory between week standard deviations (SD Wks') for all the participants, excluding those laboratories flagged with an 'X'.

Cumulative Results

Laboratory Data

Mean	-	For each lab, the average of all the monthly Means reported for the weeks shown.
CPV	-	Comparative Performance Value, an indication of how well a laboratory's cumulative mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean).
SDr	-	For each laboratory, the average of the weekly within-lab standard deviations (SD's) for the weeks shown.
SD Wk	-	The standard deviation among the laboratory's weekly Means for the weeks shown, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.
Wks	-	The number of weeks included in the cumulative period.
Inst	-	The two letter instrument code. Codes are summarized at the bottom of the last analysis page.

Consensus Data

Grand Mean	-	The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for the number of weeks included in the cumulative period.
Avg SD	-	For the cumulative period, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.
SD btwn Labs	-	For the cumulative period, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Wks	-	For the cumulative period, the average of the laboratory between week standard deviations for all the participants, excluding those laboratories flagged with an 'X'.
Labs Incld	-	The number of laboratory Means included in the Grand Mean.

Any laboratory that receives a 'flag' following a mean or standard deviation should refer to the chart below for an explanation of the data flag symbol:

Flag	Explanation

Data Flags " X " and " * " indicate a laboratory's performance on an average value differed from the consensus.
Data Flags " H " and " L " indicate a laboratory's performance on a standard deviation differed from the consensus.

Flags assigned to Weekly Means, Monthly Mean and Cumulative Mean:

X	Excluded from the weekly means, monthly means and/or the cumulative mean. Immediate review of data and/or testing procedure is recommended.
*	Included in the weekly means, monthly means and/or the cumulative mean; however, lab should review testing procedure and monitor future results.

Flags assigned to Weekly Means:

H	Indicates high within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory average SD and consensus average SD values are shown.
L	Indicates low within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory monthly average SD and consensus average SD values are shown.

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

H	Indicates high variabilty between weekly means (high week-to-week variation).
L	Indicates low variabilty between weekly means (low week-to-week variation).

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3DVN49	871.8	0.44	47.80	892.6	0.70	27.20	4	ER
4L4F9W	736.0	-1.61	97.72	780.8	-1.20	30.18	4	LL
4Y9VR8	908.8	1.00	38.14	909.4	0.99	8.13	4	EX
7RHZ9E	870.2	0.42	25.98	864.5	0.22	19.04	4	TE
8BQPWW	942.6	1.51	45.73	954.7	1.76	15.24	4	ER
A3VH6F	848.6	0.09	48.45	864.0	0.21	35.57	4	ER
BANXE7	784.0	-0.89	69.02	787.9	-1.08	40.96	4	LS
CXQCR9	753.9	-1.34	27.43	732.3	-2.03 *	22.12	4	LS
D3G73E	861.4	0.29	17.95	851.9	0.01	13.44	2	ET
G4FHCC	760.4	-1.24	36.09	848.6	-0.05	72.17	4	EX
HJBGQ6	771.8	-1.07	42.33	850.4	-0.02	57.62	4	ER
KVXABX	839.2	-0.05	48.08	869.8	0.31	20.45	4	LG
LUHBLT	985.4	2.16 *	27.44	993.0	2.41 *	35.77	4	LG
M83BQ2	736.9	-1.60	37.02	739.0	-1.92 *	39.72	4	ET
NQRTET	869.2	0.40	55.58	854.3	0.05	32.86	4	EX
P9LXCX	846.4	0.06	94.85	872.5	0.36	32.24	4	ES
RXYPP4	878.8	0.55	59.55	854.7	0.06	37.19	4	LG
TYNDMP	759.2	-1.26	85.65	816.8	-0.59	41.22	4	LS
UKYV8Q	920.6	1.18	76.92	879.9	0.49	38.37	4	LS
V26B6P	901.8	0.90	33.93	892.3	0.70	8.03	4	LM
VDFRZN	820.9	-0.33	54.65	837.6	-0.24	30.77	4	LL
VTB7BN	884.3	0.63	89.15	877.6	0.45	18.74	4	LO
VVDE37	854.4	0.18	69.08	829.6	-0.37	45.81	4	LM
X3RY2N	852.7	0.15	51.16	848.7	-0.05	17.62	4	LS
X7BU6G	803.8	-0.59	34.68	782.6	-1.17	70.40	4	TB

Consensus (All Labs) Results

Month Mean	842.52	Grand Mean	851.41
Avg SD	57.04	Avg SD Months	36.40
SD btwn Labs	66.12	SD btwn Labs	58.63
Labs Incld	25	Labs Incld	25

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	850.57	70.73	8.05	8
Clip sealing	838.73	65.74	3.79	17

Key to Instrument Codes Reported by Participants			
ER	Emerson 6200 Series	ES	Emerson 8510
ET	Emerson 7200	EX	Emerson Apparatus (Model not specified)
LG	TLS / L.A.B. Validator Series	LL	Lansmont 76-5K
LM	Lansmont 122-15k	LO	Lansmont 152-30k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
TE	Testometric M500 - 25 KN		

Containerboard Interlaboratory Testing Program

Analysis 202

Edgewise Compressive Strength, by T811, Corrugated Board - EC12

TAPPI Official Test Method T811

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3DVN49	36.9	0.29	1.70		36.9	0.31	0.00	1	TB
3PN4TA	29.0	-1.89 *	1.59		30.6	-1.58	3.16	4	TX
A3VH6F	32.1	-1.03	4.40	H	33.2	-0.80	2.25	4	EN
BANXE7	40.0	1.12	1.21		38.7	0.85	0.85	4	LC
CU9EXQ	39.1	0.88	0.83	L	39.1	0.96	0.00	1	XX
CXQCR9	31.5	-1.21	1.71		30.8	-1.51	0.91	4	EM
EM64U4	34.0	-0.52	4.18	H	33.2	-0.81	1.89	4	LD
G4FHCC	37.3	0.38	1.78		35.8	-0.02	1.29	4	LC
KVXABX	38.7	0.77	3.22		39.2	0.97	0.69	4	LE
LA7L7B	35.4	-0.13	0.52	L	36.2	0.10	0.85	3	TF
PEANK2	38.0	0.59	3.62		34.9	-0.30	3.48	4	XX
QNUHCN	41.7	1.59	1.05		41.2	1.58	0.53	4	LC
V7XL2V	32.9	-0.81	1.44		33.0	-0.86	1.28	4	XX
VDFRZN	38.7	0.78	0.84	L	40.4	1.36	1.55	4	XX
X3RY2N	33.0	-0.80	2.06		35.1	-0.25	1.69	4	LD

Consensus (All Labs) Results

Month Mean	35.89	Grand Mean	35.88
Avg SD	2.34	Avg SD Months	1.80
SD btwn Labs	3.65	SD btwn Labs	3.36
Labs Incld	15	Labs Incld	15

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W Crush Tester 840	TB	TMI Monitor/Compression Tester, Model 17-70
TF	TMI Digital Crush Tester, Model 17-19	TX	TMI (model not specified)
XX	Instrument make/model not specified by lab		

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3PN4TA	35.8	-1.94 *	2.19		32.5	-4.75 X	8.88 H	4	TX
44Z636	37.0	-1.36	1.61		38.7	-0.27	1.76	4	LD
4L4F9W	43.1	1.65	2.61		38.8	-0.15	2.94	4	LC
6D8YYJ	40.1	0.18	2.08		40.6	1.09	0.96	4	LD
79QYCC	43.4	1.78	1.66		41.3	1.60	2.37	3	LD
7RHZ9E	40.3	0.29	0.68	L	40.1	0.78	1.31	4	LD
8BQPWW	39.4	-0.19	1.70		39.2	0.10	0.54	4	EM
8YDJMF	40.1	0.18	1.62		40.0	0.67	0.47	4	TD
A3VH6F	36.2	-1.73	1.93		35.9	-2.31 *	0.93	4	EN
AY9J37	44.9	2.54 *	0.71	L	45.2	4.47 X	0.45	2	TL
BANXE7	40.7	0.46	1.89		41.0	1.38	0.39	4	LC
CU9EXQ	37.4	-1.14	1.84		37.4	-1.18	0.00	1	XX
CXQCR9	37.9	-0.92	1.45		38.3	-0.54	0.45	4	EM
D3G73E	41.2	0.72	2.08		38.0	-0.76	4.52	2	EM
EM64U4	36.8	-1.43	2.01		37.0	-1.52	0.87	4	LD
G4FHCC	38.7	-0.53	1.44		38.1	-0.69	1.24	4	LC
GRMYX7	40.2	0.21	1.28		39.1	0.01	0.80	4	EM
HJBGQ6	40.2	0.23	1.16		39.3	0.16	1.10	4	LD
JX3G7X	41.4	0.79	1.06		40.5	1.06	0.99	4	LC
KVXABX	39.1	-0.30	2.57		40.6	1.10	1.19	4	LY
LA7L7B	39.3	-0.22	0.67	L	39.3	0.17	0.80	3	TD
LAQHE4	39.0	-0.36	1.24		37.8	-0.90	0.80	4	LD
LUHBLT	41.2	0.71	1.87		40.2	0.83	1.37	4	EM
M83BQ2	40.5	0.38	1.88		38.6	-0.31	1.53	4	TD
NQRTET	38.7	-0.52	0.49	L	38.3	-0.56	0.53	3	CT
P9LXCX	42.6	1.39	1.14		40.6	1.09	1.85	4	LD
QNUHCN	41.0	0.63	1.14		41.3	1.60	1.21	4	LC
QRTT8N	38.6	-0.56	2.72	H	38.2	-0.61	0.55	2	EM
RXYPP4	39.2	-0.28	1.30		39.4	0.23	1.33	4	TJ
TJB4HE	39.6	-0.10	1.50		40.0	0.72	0.39	4	TG
TPXWUE	34.6	-2.53 *	1.73		36.0	-2.19 *	2.15	4	XX
UKYV8Q	42.7	1.45	1.83		39.0	-0.08	2.90	4	TB
V26B6P	39.7	-0.02	1.62		38.7	-0.29	0.73	4	EM
V7XL2V	39.5	-0.10	1.91		38.7	-0.25	0.59	4	IM
VPCYEK	39.2	-0.25	1.28		37.8	-0.92	1.29	3	EM
VTB7BN	40.7	0.49	1.29		37.8	-0.89	1.96	4	LD
VVDE37	41.4	0.80	0.69	L	39.2	0.07	2.64	4	TG
X3RY2N	39.9	0.07	1.94		41.0	1.44	0.79	4	LD
X7BU6G	41.3	0.75	0.23	L	41.8	1.98 *	0.63	4	LD

Containerboard Interlaboratory Testing Program

Analysis 203

Edgewise Compressive Strength by T839, Corrugated Board - EC12

TAPPI Official Test Method T839

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
X9DWQB	38.3	-0.69	1.96	39.1	0.02	0.69	4	TD
Y4C9MA	38.4	-0.66	1.21	37.9	-0.88	2.38	3	TK
YTJRX9	40.3	0.27	1.61	38.2	-0.62	1.86	3	XX
Z24HW7	39.5	-0.12	1.97	38.8	-0.19	0.85	3	LC

Consensus (All Labs) Results

Month Mean	39.74	Grand Mean	39.06
Avg SD	1.65	Avg SD Months	1.58
SD btwn Labs	2.03	SD btwn Labs	1.38
Labs Incld	43	Labs Incld	41

Key to Instrument Codes Reported by Participants

CT	Con-Ten	EM	Emerson 1200 Series
EN	Emerson 2200	IM	Instron 5500 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W 830	TB	TMI Monitor/Compression Tester, Model 17-70
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TJ	TLS Compression Tester, Model CDM-5	TK	TLS Compression Tester, Model 5184
TL	Tech-Lab Systems Compression	TX	TMI (model not specified)
XX	Instrument make/model not specified by lab		

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2HAWZL	107.0	119.2	110.1	109.8	111.5	0.28	8.5	5.3	109.3	-0.40	8.9	4.1	16	LA
34B8JE	113.1	113.4	114.7	115.0	114.1	0.94	9.3	0.9	113.1	0.70	9.7	3.8	16	AH
3DVN49	106.3	101.5 *	105.5	106.2	104.9	-1.47	8.0	2.3	107.1	-1.03	9.3	2.6	16	LZ
4KD7CM	106.3	113.0	106.7	108.6 L	108.7	-0.48	8.9	3.1	110.2	-0.15	9.6	3.5	16	LC
4NDG9M	109.1	111.0	109.1	110.0	109.8	-0.18	5.5	0.9	109.7	-0.30	7.3	1.8	16	LA
4Y9VR8	105.6	105.6	104.4	104.8	105.1	-1.41	8.4	0.6	107.1	-1.05	8.5	2.7	16	AH
6D8YYJ	114.6	114.9	114.5	115.1	114.8	1.13	7.2	0.3 L	114.1	0.97	7.2	1.1	16	LA
6K4Y96	110.6	111.0	110.9	110.3	110.7	0.06	5.8	0.3 L	110.7	-0.01	5.4	0.2 L	16	LJ
79QYCC	112.2	117.8	111.3	108.6	112.5	0.53	9.9	3.9	114.6	1.12	8.4	3.8	12	LC
93V444	116.3	110.1	111.1	112.5	112.5	0.52	11.0	2.7	112.2	0.44	9.7	2.1	16	LC
B82ED9	110.1	109.8	110.8	109.8	110.1	-0.09	7.5	0.5 L	109.2	-0.43	7.0	1.0	16	AH
BANXE7	106.0	105.2	107.9	112.2	107.8	-0.70	8.8	3.1	108.9	-0.52	8.5	3.3	16	AH
CA4TBC	95.9 X	105.7	108.8	108.0	104.6	-1.55	7.3	5.9	106.4	-1.25	9.7	4.1	16	LC
CQ8B74	104.2	103.3	97.4 *	105.4	102.6	-2.08 *	8.4	3.5	106.0	-1.36	9.2	4.1	10	LJ
CU9EXQ	114.8 L	114.5	114.0	114.9 L	114.5	1.07	5.3	0.4 L	117.1	1.85	27.5	8.5 H	12	LC
EM64U4	112.6	108.7	106.9	112.2	110.1	-0.10	6.8	2.7	107.3	-0.98	7.2	2.9	16	LA
EPRNT8	109.8	111.3	111.1	107.6	110.0	-0.14	7.8	1.7	110.7	-0.02	7.8	2.0	16	LA
G9AKDQ	107.9	108.2	105.9	111.2	108.3	-0.57	8.8	2.2	110.3	-0.12	8.5	2.7	16	LA
GDKU4Y	112.8	118.5	116.3	120.8 *	117.1	1.74	10.1	3.4	115.5	1.38	10.0	3.1	16	LC
GMVU42	114.0	114.6	114.0	114.2	114.2	0.98	5.2	0.3 L	113.8	0.89	5.7	1.6	16	RE
HJBGQ6	117.0	114.3	108.7	112.4	113.1	0.69	7.8	3.5	113.3	0.75	8.1	3.7	16	AH
HLYYUX	113.6	104.2	114.6	111.1	110.9	0.11	9.2	4.7	110.4	-0.10	9.6	4.2	16	LC
HZFT9A	109.7	105.5	100.2 *	105.2	105.1	-1.40	6.9	3.9	107.1	-1.05	8.6	3.7	16	LC
J7YGFK	114.3	113.0	112.4	111.4	112.8	0.61	9.9	1.2	112.7	0.57	9.2	1.1	12	LZ
J8VRFT	113.6	115.8	115.0	112.6	114.2	0.99	10.4	1.4	111.6	0.27	9.7	3.2	16	LC
K3BD2W	106.1	104.6	108.6	107.3	106.7	-1.00	10.4	1.7	110.7	-0.02	13.3	4.0	16	TB
K8N83A	106.0	112.0	105.7	107.4 L	107.8	-0.71	8.1	2.9	111.4	0.19	9.8	4.3	12	LC
KCG7FK	110.0 L	108.7	110.5 L	110.7	110.0	-0.14	3.9	0.9	109.7	-0.28	3.7	0.8 L	12	LA
KULGJQ	110.0 L	109.8 L	109.9 L	110.8 L	110.1	-0.09	3.4	0.5 L	109.2	-0.42	3.7	1.6	16	LA
KVXABX	115.1	119.8 *	117.5	117.2	117.4	1.82	7.0	1.9	116.4	1.65	7.1	2.0	16	AH
LA7L7B	118.7	115.3	116.7	120.7 *	117.9	1.94 *	11.6	2.4	113.9	0.93	10.0	3.4	12	XX
LAQHE4	107.4	108.7	102.1	108.8	106.8	-0.98	8.8	3.2	107.4	-0.95	8.9	2.9	16	LC
LH4BPZ	107.3	109.1	111.8	111.1	109.8	-0.17	6.8	2.0	109.6	-0.32	6.9	1.6	16	TP
NCLXVQ	110.6	110.5	114.1	109.0	111.1	0.15	4.1	2.2	112.6	0.54	4.6	2.9	15	XX
NNNA8W	106.5	107.2	108.1	108.6	107.6	-0.76	10.0	0.9	108.7	-0.58	9.5	3.1	16	LB

Containerboard Interlaboratory Testing Program

Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42F1

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
NQRTET	119.3 *	115.4	119.9 *	116.3	117.7	1.90	9.2	2.2	117.0	1.81	9.3	2.6	16	XX
P4AX2F	108.2	120.0 *	111.2	95.6 XL	108.7	-0.45	7.9	10.1 H	112.2	0.44	9.4	5.9	16	LA
P9LXCX	115.1	111.6	113.6	114.1	113.6	0.82	9.6	1.5	110.4	-0.09	9.6	3.3	16	LA
PVFT9E	109.6	110.1	106.9	110.7 H	109.3	-0.30	10.8	1.7	107.2	-1.01	9.5	2.8	16	LA
RY8286	109.8	109.3	109.7	108.4	109.3	-0.31	10.0	0.6	108.0	-0.77	9.1	3.0	16	LC
T7MWPK	103.0 L	111.5	107.9	104.9	106.8	-0.96	6.2	3.7	105.7	-1.45	7.4	4.9	16	AH
TAN49W	115.3	112.3	114.5	109.4	112.9	0.63	10.7	2.6	113.5	0.81	8.6	3.2	16	TB
VKZ4PM	107.1 H	115.7	115.8	107.5	111.5	0.27	11.6	4.9	113.5	0.80	10.8	5.1	16	AX
WJLZKP	103.0	111.0	103.0	110.9	107.0	-0.92	8.9	4.6	108.5	-0.63	11.7	3.4	16	LC
X3RY2N	112.1	110.5	104.1	106.4	108.3	-0.58	9.8	3.7	105.8	-1.41	9.3	3.3	16	LA
XQ2YMR	109.1	109.2	111.3	110.0	109.9	-0.15	10.5	1.0	110.4	-0.09	10.8	3.6	16	LA
YQUDEP	110.2	105.6	105.8	106.1	106.9	-0.93	9.9	2.2	106.9	-1.09	8.9	2.7	16	LC
YWJRDH	117.0	112.8	No Data	No Data	114.9	1.17	11.5	2.9	117.8	2.06	*11.6	2.1	14	LZ
Z24HW7	115.7	118.5	116.6	107.7	114.6	1.09	8.5	4.8	114.1	0.99	8.7	3.3	16	LA
ZA3WXJ	116.5	114.3	112.4	111.7	113.7	0.85	10.5	2.2	108.6	-0.62	9.4	3.5	16	LC
ZN8TGL	117.7	111.0	117.5	117.5	115.9	1.43	9.9	3.3	119.1	2.44	*10.4	4.2	16	TB
ZR6F2N	111.1	111.8	107.9	102.8	108.4	-0.55	9.7	4.1	109.5	-0.36	12.2	4.1	16	LC
ZTDRHQ	114.2	109.4	104.8	109.5	109.5	-0.26	7.5	3.9	109.1	-0.45	9.5	4.2	16	LC
ZTXD9V	103.0	96.0 X	105.1	102.8 L	101.7	-2.30 *	8.6	4.0	102.8	-2.28 *	8.4	2.8	12	LA

Consensus (All Labs) Results

Wk Mean	110.87	111.24	110.10	110.35
Avg SDr	8.81	8.30	8.83	8.76
SD btwn Labs	4.29	4.37	4.75	3.99
Labs Incld	53	53	53	52
Labs Excld	1	1	0	1
Labs not Rcvd	0	0	1	1

Month Mean	110.47
Avg SD	8.70
SD btwn Labs	3.81
SD btwn Wks	3.15
Labs Incld	54

Grand Mean	110.70
Avg SD	9.64
SD btwn Labs	3.46
SD btwn Wks	3.42
Labs Incld	54

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AX	Perkins Mullen Tester (model not specified)
LA	L&W Bursting Strength Tester	LB	L&W Burst-O-Matic
LC	L&W Autoline	LJ	L&W Bursting Strength Tester J-Type
LZ	L&W (model not specified)	RE	Regmed/Mullen Tester
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2HAWZL	90.5	92.2	92.9	90.3	91.5	0.01	5.9	1.3	90.7	-0.35	7.8	3.0	12	LA
34B8JE	95.3	95.3	96.6	95.3	95.6	1.26	9.8	0.7	96.0	1.42	9.1	3.1	12	AH
3DVN49	87.0	87.0	91.4	89.2	88.6	-0.85	7.5	2.1	89.8	-0.67	8.1	2.6	12	LA
4KD7CM	92.7	93.9 L	89.2	90.7	91.6	0.05	5.3	2.1	91.5	-0.09	6.7	2.2	12	LC
4NDG9M	85.3	84.8	88.5	83.3 *	85.5	-1.79	6.0	2.2	88.9	-0.93	7.2	3.4	12	LA
4Y9VR8	88.8	88.4	84.0 H	89.6	87.7	-1.13	9.2	2.5	90.1	-0.55	8.2	3.6	12	AH
6D8YYJ	92.4	92.2	92.0	92.1	92.2	0.22	4.5	0.2 L	92.7	0.30	4.2	0.6 L	12	LA
6K4Y96	90.2	90.1 L	90.2	90.1	90.1	-0.40	4.9	0.0 L	90.7	-0.36	5.0	0.6 L	12	LJ
79QYCC	91.4	92.8	96.0	92.7	93.2	0.54	8.2	2.0	94.9	1.06	8.9	2.9	8	LC
93V444	95.4	93.6	92.7	95.7	94.3	0.87	9.0	1.5	94.4	0.90	8.9	2.8	12	LC
B82ED9	91.5	91.0	92.2	91.2	91.5	0.01	4.8	0.5	91.3	-0.14	4.8	0.7 L	12	AH
BANXE7	90.0	88.7	89.1	93.1	90.2	-0.37	7.8	2.0	88.7	-1.02	8.0	2.3	12	AH
CA4TBC	86.1	89.4	92.5	94.2 H	90.5	-0.27	9.2	3.6	91.1	-0.21	8.6	4.2	12	LC
CQ8B74	84.6	89.0	83.4	87.8	86.2	-1.58	6.9	2.6	88.5	-1.08	7.5	3.6	9	LJ
EM64U4	91.4	87.8	87.1	86.2	88.1	-1.00	7.2	2.2	87.7	-1.35	6.6	2.2	12	LA
EPRNT8	94.3	92.0	89.2	91.6	91.8	0.10	6.6	2.1	92.6	0.28	7.2	1.8	12	LA
G9AKDQ	87.9	90.4	88.6	90.9	89.4	-0.61	8.3	1.4	90.4	-0.45	8.7	1.9	8	LA
GDKU4Y	98.1	96.3	88.7	97.6	95.2	1.12	8.0	4.4	94.6	0.96	9.1	3.4	12	LC
GMVU42	95.0	95.4	94.4	96.4	95.3	1.16	4.1	0.8	96.8	1.68	4.9	1.6	12	RE
HJBGQ6	93.6	97.7	98.5	92.4	95.6	1.23	7.0	3.0	94.5	0.92	7.9	3.1	12	AH
HLYYUX	94.4	87.3 H	97.9	93.1	93.2	0.52	8.6	4.4	93.1	0.45	8.1	3.3	12	LC
HZFT9A	91.6	87.7	88.5	85.3	88.3	-0.95	6.7	2.6	87.9	-1.30	7.4	3.0	12	XX
J7YGFK	96.9	100.0 *	96.9	97.3	97.8	1.91	8.6	1.5	95.9	1.39	8.6	3.8	8	LZ
J8VRFT	95.2	93.5	95.1	90.5 H	93.6	0.64	8.2	2.2	93.8	0.69	7.6	3.2	12	LC
K3BD2W	93.5	88.1	84.9	89.7 H	89.1	-0.72	10.0	3.5	90.5	-0.41	8.5	2.5	12	TB
K8N83A	97.6	96.8	91.1	96.5	95.5	1.22	9.1	2.9	101.3	3.18 X	9.4	5.2	12	LC
KCG7FK	89.4	90.9	89.7 L	88.6	89.6	-0.54	3.7	1.0	89.8	-0.65	4.2	1.3	12	LA
KULGJQ	91.6	92.3 L	91.9 L	92.9	92.2	0.22	3.6	0.6	92.5	0.25	5.2	3.0	12	LA
KVXABX	93.7	95.1	96.9	92.4	94.5	0.93	6.0	1.9	94.9	1.06	8.0	3.1	12	LZ
LA7L7B	92.8	89.2	88.6	91.8	90.6	-0.25	8.9	2.0	90.5	-0.42	10.7	1.5	12	XX
LAQHE4	91.1	87.3	89.0	90.3	89.4	-0.61	6.1	1.7	90.5	-0.42	7.2	2.5	12	LC
LH4BPZ	89.5	91.8	91.7	91.1	91.0	-0.13	6.0	1.1	90.4	-0.44	5.6	1.8	12	TP
NCLXVQ	90.9	89.3	91.5 L	90.3	90.5	-0.28	4.2	0.9	91.8	0.01	5.1	1.8	12	XX
NNNA8W	89.7	85.1	90.3	87.3	88.1	-1.01	5.9	2.4	86.9	-1.62	7.3	2.2	12	LB
NQRTET	97.5	92.1	99.5 *	98.5 *	96.9	1.64	9.1	3.3	96.0	1.44	8.6	3.1	12	XX

Containerboard Interlaboratory Testing Program

Analysis 207

Bursting Strength (Mullen), 35 lb Linerboard - 35E1

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
P4AX2F	87.2 L	75.9 XL	86.4 L	88.8	84.5	-2.07 *	3.1	5.8 H	88.9	-0.96	7.0	6.1 H	8	LA
P9LXCX	85.6	97.2 H	87.9	93.0	90.9	-0.16	10.1	5.2	91.9	0.07	9.2	4.0	12	LA
PVFT9E	85.6 H	90.1	89.3	85.5	87.6	-1.15	9.2	2.4	89.5	-0.76	8.5	2.9	12	LA
RY8286	91.5	91.2	89.0	87.8	89.9	-0.47	8.2	1.8	89.8	-0.63	7.8	2.4	12	LC
T7MWPK	87.1	89.6	87.5 L	91.2	88.8	-0.78	5.5	1.9	90.1	-0.54	6.5	1.9	12	AH
TAN49W	94.6	92.6	99.1	96.8	95.8	1.30	8.2	2.8	94.3	0.86	8.4	3.0	12	TB
VKZ4PM	89.8	98.8 *	101.4 *	91.7	95.4	1.19	7.6	5.6 H	94.7	0.98	8.3	3.7	12	AX
WJLZKP	89.8	90.0	89.8	91.5	90.3	-0.35	8.0	0.8	89.2	-0.86	8.1	2.3	12	LC
X3RY2N	90.4	87.6	83.8	87.3	87.3	-1.25	8.0	2.7	89.1	-0.89	8.9	2.5	12	LA
XQ2YMR	97.4	91.6	90.7	93.6	93.4	0.57	7.3	3.0	93.7	0.66	8.2	5.7	12	LA
YQUDEP	89.1	87.7	91.3	89.7	89.5	-0.60	6.9	1.5	90.3	-0.49	8.0	2.5	12	LA
YWJRDH	100.0 *	93.9	No Data	No Data	97.0	1.66	7.7	4.3	98.5	2.25 *	8.3	2.7	10	LZ
Z24HW7	95.8	94.1	94.7	90.7	93.8	0.72	7.3	2.2	94.0	0.76	8.6	3.4	8	LA
ZA3WXJ	93.1	94.5	93.3	91.7	93.2	0.51	9.0	1.1	91.5	-0.09	7.2	3.1	12	LC
ZN8TGL	98.6	94.4	97.2	99.7 *	97.5	1.81	6.2	2.3	99.6	2.64 *	7.2	3.2	12	TB
ZR6F2N	91.8	89.9	89.0	91.2 L	90.5	-0.29	8.1	1.3	89.9	-0.63	7.9	1.9	12	LC
ZTDRHQ	96.7	95.1	90.4	87.1	92.3	0.26	7.5	4.4	90.7	-0.34	7.4	3.7	12	LC
ZTXD9V	80.8 *	85.6	86.0	86.1	84.6	-2.05 *	6.3	2.6	84.7	-2.36 *	8.4	2.6	12	AA

Consensus (All Labs) Results

Wk Mean	91.72	91.51	91.30	91.33	Month Mean	91.44	Grand Mean	91.74
Avg SDr	7.29	7.94	7.28	6.95	Avg SD	7.36	Avg SD	7.69
SD btwn Labs	4.06	3.57	4.22	3.55	SD btwn Labs	3.33	SD btwn Labs	2.99
Labs Incld	53	52	52	52	SD btwn Wks	2.63	SD btwn Wks	2.94
Labs Excld	0	1	0	0	Labs Incld	53	Labs Incld	52
Labs not Rcvd	0	0	1	1				

Key to Instrument Codes Reported by Participants

AA	Perkins Model A	AH	Perkins Model AH
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
RE	Regmed/Mullen Tester	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2HAWZL	89.7	86.4	88.0 H	87.5	87.9	-0.66	4.0	1.4	87.3	-0.67	3.8	2.1	16	LZ
3DVN49	95.7	90.9	91.1	90.5	92.1	0.20	3.0	2.5	92.0	0.42	2.9	2.2	16	LD
4KD7CM	91.9	90.0	89.4	89.3	90.1	-0.19	2.7	1.2	87.9	-0.52	2.9	2.6	16	LD
4NDG9M	87.8	84.4	87.7	88.0	87.0	-0.84	2.3	1.7	86.9	-0.77	2.8	2.5	16	LD
6D8YYJ	91.2	91.1	91.7	92.1	91.5	0.09	3.5	0.5	92.0	0.43	3.4	0.7 L	16	LD
6K4Y96	91.4	91.6	91.4	91.5	91.5	0.09	3.2	0.1 L	91.1	0.22	2.9	0.6 L	16	LD
79QYCC	94.2	95.8	93.3	93.6	94.2	0.64	2.4	1.1	93.1	0.68	2.7	2.5	12	LD
7RHZ9E	92.4	92.8 L	93.1 L	92.4 L	92.7	0.32	1.5	0.3 L	93.0	0.65	1.7	0.5 L	16	LD
8LTYGD	92.2	94.0	90.6	86.3	90.8	-0.06	2.8	3.3	88.8	-0.32	2.9	2.9	16	LC
93V444	89.6	91.0	94.1	91.6	91.6	0.10	2.7	1.9	92.6	0.56	2.5	2.0	16	LD
98KM6X	85.9	86.3	85.5	86.0	85.9	-1.06	2.1	0.3 L	84.4	-1.34	1.9	1.5	16	RS
A3VH6F	83.6	83.8	82.6	84.7	83.7	-1.52	2.9	0.9	83.9	-1.47	2.7	1.3	16	EN
BANXE7	90.0	91.2	89.7	90.5	90.3	-0.15	2.5	0.7	90.8	0.15	2.6	1.2	16	LC
CA4TBC	92.3	90.1	97.3	94.5	93.5	0.51	3.5	3.1	93.3	0.72	3.7	2.7	16	LD
CQ8B74	91.8	87.2	88.8	89.0	89.2	-0.39	3.3	1.9	90.8	0.13	3.7	2.8	10	LD
DAL2Y7	99.4	99.4	97.2	97.1	98.3	1.48	3.8	1.3	95.0	1.12	3.1	2.7	16	TU
EM64U4	87.6	86.7	90.5	88.1	88.2	-0.59	2.6	1.6	88.4	-0.42	2.7	1.1	16	LD
GMVU42	95.2	95.2	95.3	95.4	95.3	0.86	2.3	0.1 L	87.4	-0.66	2.2	6.6	16	LZ
GRMYX7	89.9	92.2	90.3	89.6	90.5	-0.11	2.6	1.2	90.6	0.10	2.9	1.0	16	EM
HJBGQ6	87.2	86.5	86.3	86.2	86.6	-0.93	2.8	0.5	84.0	-1.43	2.5	5.9	16	LD
HLYYUX	93.0	96.1	95.8	95.4	95.1	0.82	3.8	1.4	90.4	0.04	3.8	4.4	16	LD
HZFT9A	86.5	86.0	90.1	88.2	87.7	-0.69	3.2	1.9	88.6	-0.38	3.5	2.3	16	LD
J6PC3V	88.7	82.5	85.4	89.7	86.6	-0.92	3.2	3.3	78.8	-2.66 *	3.9	5.4	16	EM
J8VRFT	95.3	91.3	89.7	88.6	91.2	0.03	3.4	3.0	89.5	-0.16	3.0	2.2	16	LD
JWV7AU	83.3 H	92.6	96.7	88.1 H	90.2	-0.18	5.7	5.8 H	90.6	0.11	5.3	4.2	16	MB
KCG7FK	89.6	90.2 L	89.3 L	89.3 L	89.6	-0.30	1.1	0.4	90.3	0.03	1.8	0.8 L	12	LZ
KT8796	91.9	No Data	102.5 *	96.3	96.9	1.20	4.0	5.4 H	96.9	1.56	4.6	10.4 H	15	MB
KULGJQ	85.6 L	85.5 L	85.6 L	85.6 L	85.6	-1.13	0.2	0.0 L	81.2	-2.10 *	1.5	6.4	16	TU
KVXABX	91.6	89.3	87.1	90.0	89.5	-0.33	2.9	1.9	89.5	-0.15	2.5	1.4	16	LG
LAQHE4	91.7	89.6	90.1	89.5	90.2	-0.17	3.0	1.0	89.4	-0.18	3.2	1.8	16	LD
LH4BPZ	90.2	90.1	89.2	90.2	89.9	-0.24	3.3	0.5	90.0	-0.05	3.2	1.1	16	TJ
N8VLZU	91.9	91.9	90.7	94.0	92.1	0.22	3.6	1.3	89.6	-0.14	3.6	3.0	16	LD
NCLXVQ	82.1	88.6	79.4 *	86.6	84.2	-1.42	3.0	4.2	85.0	-1.21	3.2	3.9	15	LD
ND7G3H	88.4	89.1	87.0	90.4	88.7	-0.48	4.2	1.4	86.2	-0.92	3.5	2.6	16	EX
NNNA8W	92.8	93.1	90.4	90.3	91.6	0.12	3.6	1.5	92.1	0.43	3.3	2.5	16	LC

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
P4AX2F	96.0	95.7	97.6	112.2 XH	100.4	1.91	4.9	7.9 H	95.3	1.20	4.3	7.5 H	16	LD
PVFT9E	103.7 *	101.4 *	103.0 *	99.4 *	101.9	2.22 *	3.7	1.9	99.4	2.15 *	3.3	2.4	16	LD
QNUHCN	88.5	87.5	88.1	88.3	88.1	-0.61	2.8	0.4	88.0	-0.52	2.7	0.7 L	16	LC
T7MWPK	98.4	96.9	94.6	95.9	96.4	1.10	3.4	1.6	94.9	1.10	4.0	4.9	16	LZ
TAN49W	93.5	94.9	93.2	89.9	92.9	0.37	4.0	2.1	91.5	0.31	3.6	2.9	6	LD
TJB4HE	95.6	95.1	95.4	95.6	95.4	0.89	2.3	0.3 L	94.7	1.04	2.8	1.1	16	TH
TPXWUE	104.1 *	103.1 *	105.2 *L	103.4 XL	104.0	2.64 *	1.5	1.0	94.5	1.00	2.6	5.8	16	XX
UUA4QC	92.5	94.7	89.2	93.5	92.5	0.29	3.4	2.4	90.3	0.02	3.0	3.2	16	LZ
V7XL2V	90.2	91.8	88.2	89.3	89.9	-0.24	3.3	1.5	85.0	-1.22	4.5	3.5	16	MB
VKZ4PM	81.2 *	76.3 XH	75.1 XH	81.5 *	78.5	-2.57 *	5.2	3.3	81.2	-2.10 *	4.6	4.2	16	LC
WE7C7J	93.7	93.7 H	94.7	93.4	93.9	0.58	4.6	0.6	91.9	0.39	4.1	1.8	12	TH
WJLZKP	89.7	89.1	90.5	89.4	89.7	-0.29	3.0	0.6	89.9	-0.06	2.7	1.9	16	LD
X3RY2N	90.4	96.1	93.0	93.5	93.2	0.44	2.5	2.3	91.9	0.41	2.8	1.8	16	LD
XQ2YMR	95.7	99.8	95.4 H	96.9	97.0	1.21	4.0	2.0	96.2	1.40	3.2	2.4	16	LZ
Y4C9MA	85.1	83.0	84.2	85.9	84.6	-1.33	1.8	1.2	87.3	-0.68	2.0	2.3	16	MB
YQUDEP	89.0	89.9	91.1	90.0	90.0	-0.22	2.9	0.9	89.6	-0.14	2.7	1.3	16	LD
YWJRDH	85.7	88.5	No Data	No Data	87.1	-0.82	2.9	2.0	89.8	-0.08	2.7	1.9	14	LC
Z24HW7	83.0 H	85.2	81.3	82.5 *	83.0	-1.66	4.9	1.6	85.7	-1.05	4.7	4.1	16	LC
ZA3WXJ	83.5	87.0	86.1 H	85.0 H	85.4	-1.16	6.9	1.5	95.2	1.17	6.2	7.1 H	16	LC
ZN8TGL	104.7 *	98.3	102.9 *	102.3 X	102.1	2.25 *	3.1	2.7	100.8	2.47 *	3.2	2.4	16	LX
ZR6F2N	93.0	92.3	91.1	90.6	91.8	0.14	2.6	1.1	92.7	0.58	2.6	1.4	16	LC
ZWXGZH	93.8	92.8	94.7	94.3 L	93.9	0.58	2.6	0.8	93.7	0.81	3.1	0.7 L	12	EN

Consensus (All Labs) Results

Wk Mean	91.10	91.26	91.31	90.39	Month Mean	91.07	Grand Mean	90.19
Avg SDr	3.42	3.12	3.32	3.34	Avg SD	3.35	Avg SD	3.31
SD btwn Labs	5.08	4.63	5.26	3.83	SD btwn Labs	4.87	SD btwn Labs	4.29
Labs Incld	57	55	55	53	SD btwn Wks	2.25	SD btwn Wks	3.48
Labs Excld	0	1	1	3	Labs Incld	57	Labs Incld	57
Labs not Rcvd	0	1	1	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2HAWZL	81.8	76.2	73.3	79.3	77.6	-0.69	4.1	3.7	77.5	-0.30	4.6	2.8	12	LZ
3DVN49	84.8	83.3	82.6	82.1	83.2	0.93	3.9	1.2	81.4	0.68	3.8	3.4	12	LD
4KD7CM	82.7	80.9	77.2 L	77.9	79.7	-0.10	3.1	2.6	76.0	-0.70	2.7	3.6	12	LD
4NDG9M	77.5	71.8 *L	77.2	78.4 L	76.2	-1.10	2.3	3.0	75.4	-0.85	2.9	2.7	12	LD
6D8YYJ	80.6	80.2	80.9	79.4	80.3	0.07	2.5	0.6	80.1	0.35	2.8	0.4 L	12	LD
6K4Y96	81.4	81.4	81.9	81.9	81.7	0.47	3.5	0.3 L	81.1	0.61	2.9	0.6 L	12	LD
79QYCC	84.1	82.3	82.9	81.8	82.8	0.80	3.1	1.0	83.5	1.22	3.0	1.4	8	LD
7RHZ9E	82.1 L	82.3 L	82.6	82.7 L	82.4	0.69	1.3	0.3 L	82.6	0.99	1.9	0.5 L	12	LD
8LTYGD	80.7	78.1	78.6	75.5	78.2	-0.52	2.7	2.1	77.1	-0.41	2.9	2.2	12	LC
93V444	83.4	83.9	84.4	87.0	84.7	1.35	3.9	1.6	82.2	0.89	3.1	2.5	12	LD
98KM6X	75.1	75.6	75.9	76.4	75.8	-1.24	2.4	0.5	73.9	-1.23	1.9	1.7	12	RS
A3VH6F	76.1	74.5	74.8	75.0	75.1	-1.44	2.9	0.7	76.1	-0.66	3.2	1.1	12	EN
BANXE7	81.4	79.4	81.3	82.3	81.1	0.31	3.7	1.2	80.6	0.48	3.8	1.0	12	LC
CA4TBC	81.2	81.6	81.5	81.8	81.5	0.43	5.0	0.3 L	81.1	0.60	4.5	1.2	12	LD
CQ8B74	83.0	82.6	77.6	79.3	80.6	0.17	3.9	2.6	81.1	0.62	3.6	2.0	9	LD
DAL2Y7	87.2	88.1 *	82.1	88.2	86.4	1.85	4.0	2.9	84.7	1.53	7.9	4.2	12	TU
EM64U4	76.4	78.8	77.0	76.7	77.2	-0.81	2.9	1.1	76.8	-0.48	3.0	1.5	12	LD
GMVU42	86.7 L	87.6	86.8	87.8	87.2	2.09 *	2.1	0.5	80.4	0.44	2.5	5.2	12	LZ
GRMYX7	81.1	80.0	79.1	77.9	79.5	-0.15	3.3	1.3	79.2	0.12	2.9	1.1	12	EM
HJBGQ6	78.1	79.2	80.2	76.7	78.6	-0.43	3.7	1.5	80.8	0.52	3.5	4.1	12	LD
HLYYUX	81.6	85.4	83.9	82.6	83.4	0.98	3.3	1.7	79.4	0.18	3.6	4.5	12	LD
HZFT9A	76.7	75.2	78.7	77.6	77.1	-0.86	3.8	1.5	78.8	0.02	3.8	3.5	12	LD
J6PC3V	77.8	77.6	78.2	78.1	77.9	-0.61	3.6	0.3 L	68.2	-2.70 *	4.8	7.4 H	12	EM
J8VRFT	83.3	80.0	79.4	77.5 L	80.1	0.01	3.4	2.4	78.0	-0.17	3.9	2.7	12	LD
JWV7AU	74.7 H	84.4 H	84.9	78.6 H	80.6	0.18	6.4	4.9 H	77.7	-0.26	5.7	5.7	11	MB
KCG7FK	77.8	77.8	79.1	78.7	78.4	-0.48	2.3	0.7	79.9	0.30	2.2	1.8	12	LZ
KT8796	79.9	No Data	86.6	85.9	84.1	1.19	4.1	3.7	84.9	1.60	6.1	8.9 H	10	MB
KULGJQ	76.7 L	76.6 L	76.6 L	76.6 L	76.6	-0.99	0.1	0.0 L	72.2	-1.67	1.8	5.3	12	TU
KVXABX	80.9	80.6	79.8	78.0	79.8	-0.06	3.2	1.3	79.8	0.29	3.1	1.9	12	LG
LAQHE4	78.8	78.9	78.2	78.2	78.5	-0.44	3.3	0.4 L	77.3	-0.36	3.5	1.5	12	LD
LH4BPZ	78.3	77.0	77.3	78.6 H	77.8	-0.65	4.7	0.8	77.8	-0.23	3.8	1.0	12	TJ
N8VLZU	83.5	83.5	81.9	84.9	83.5	1.00	3.7	1.2	80.1	0.37	3.8	3.3	12	LZ
NCLXVQ	70.7 *	78.4	68.6 X	74.0	72.9	-2.06 *	4.5	4.3	71.4	-1.87	3.8	3.5	12	LD
ND7G3H	80.3	75.8	76.2	78.5	77.7	-0.68	2.7	2.1	75.6	-0.81	3.3	2.6	12	EX
NNNA8W	80.0	82.5	79.8	79.8 H	80.5	0.15	4.7	1.3	79.3	0.16	4.9	3.0	12	LC

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 35 lb Linerboard - 35E1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
PVFT9E	91.3 *	93.2 X	88.3 *	89.5 *	90.6	3.07 X	3.2	2.2	88.5	2.51 *	3.4	2.5	12	LD
QNUHCN	79.9	77.7	79.5	78.7	78.9	-0.32	3.4	1.0	78.9	0.05	3.4	0.9 L	12	LC
T7MWPK	85.8	82.8	83.1	85.0	84.1	1.20	4.0	1.4	82.7	1.02	4.7	2.9	12	LZ
TAN49W	80.7	83.8 H	81.8 H	79.1	81.4	0.39	5.5	2.0	77.8	-0.24	5.2	3.8	9	LC
TJB4HE	77.5	80.3	79.6	80.3 L	79.4	-0.18	2.4	1.3	79.8	0.28	3.2	1.0	12	TH
TPXWUE	83.8 L	85.9 L	88.5 *L	82.5 L	85.2	1.50	0.7	2.6	76.4	-0.59	3.4	7.8 H	12	XX
UUA4QC	82.9	83.3	78.9	85.1	82.5	0.73	3.5	2.6	80.5	0.45	3.3	3.9	12	LZ
V7XL2V	79.9	80.3	77.9	79.0	79.2	-0.23	2.7	1.1	74.4	-1.11	2.9	5.2	8	MB
VKZ4PM	71.6 *	65.7 X	65.6 XH	69.6 *	68.1	-3.46 X	4.8	3.0	70.4	-2.14 *	4.0	3.7	12	LC
WE7C7J	81.5	83.7	82.9 H	85.0	83.3	0.94	4.9	1.4	81.5	0.72	4.8	2.9	8	TH
WJLZKP	81.5	82.9	82.0	83.4	82.4	0.70	2.8	0.9	81.1	0.60	3.8	2.2	12	LD
X3RY2N	80.4	79.2	78.5	80.5	79.6	-0.11	3.2	0.9	80.4	0.43	3.1	1.4	12	LD
XQ2YMR	85.7	87.8 *	85.6	87.5	86.7	1.93	3.9	1.2	85.8	1.82	3.6	2.4	12	LZ
Y4C9MA	71.2 *	74.1	70.9 *	71.5	71.9	-2.36 *	1.8	1.5	72.6	-1.55	2.4	1.2	12	MB
YQUDEP	83.0	78.6	79.2	80.3	80.3	0.07	2.6	2.0	80.1	0.37	2.9	1.6	12	LD
YWJRDH	81.1	75.0	No Data	No Data	78.0	-0.58	3.5	4.3	77.8	-0.22	3.3	2.0	10	LC
Z24HW7	72.5	72.8 H	73.6	71.4 *	72.6	-2.17 *	4.7	0.9	71.6	-1.81	4.3	1.3	8	LC
ZA3WXJ	77.1	74.7	76.5	74.0	75.6	-1.29	4.4	1.5	76.3	-0.62	4.3	3.1	12	LC
ZN8TGL	89.5 *	92.9 X	92.7 X	91.7 *	91.7	3.39 X	3.7	1.6	90.3	2.97 X	3.9	2.7	12	LX
ZR6F2N	64.6 X	83.6	85.3	83.4	79.2	-0.23	4.4	9.8 H	81.2	0.64	3.4	5.6	12	LC
ZWXGZH	83.0	81.5	81.8 H	82.5	82.2	0.63	4.8	0.7	79.1	0.11	3.8	2.8	12	EN

Consensus (All Labs) Results

Wk Mean	80.48	80.18	80.24	80.27	Month Mean	80.02	Grand Mean	78.71
Avg SDr	3.79	3.34	3.48	3.73	Avg SD	3.61	Avg SD	3.77
SD btwn Labs	4.21	3.87	3.76	4.57	SD btwn Labs	3.44	SD btwn Labs	3.91
Labs Incld	55	52	52	55	SD btwn Wks	2.34	SD btwn Wks	3.41
Labs Excld	1	3	3	0	Labs Incld	53	Labs Incld	55
Labs not Rcvd	0	1	1	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2HAWZL	22.3	22.7	21.3 *	22.4	22.2	-1.47	1.5	0.6	22.3	-1.17	1.5	0.8	16	LA
34B8JE	24.0	23.6	23.8 H	24.0	23.8	0.35	1.9	0.2	24.4	0.86	1.8	0.6	16	LU
3DVN49	23.5	23.9	22.9	24.4 H	23.7	0.17	1.7	0.6	23.7	0.19	1.8	0.6	16	LY
4NDG9M	23.8	23.8	23.9	23.9	23.9	0.37	1.7	0.1 L	23.6	0.08	1.9	0.6	16	LA
6D8YYJ	23.0	22.9	23.1	23.1	23.0	-0.51	1.5	0.1 L	23.1	-0.35	1.6	0.2 L	16	LA
6JDNHC	23.6	24.2	24.5	24.8	24.3	0.84	1.7	0.5	23.7	0.20	1.6	0.8	12	LY
79QYCC	22.2	23.5	23.8	23.7	23.3	-0.22	1.5	0.7	23.1	-0.40	1.6	0.6	12	LA
7G6V2J	22.6	22.1	22.9	21.3	22.2	-1.37	1.6	0.7	22.4	-1.05	1.7	0.6	16	LW
7RHZ9E	24.0	23.4	23.3	23.3	23.5	0.02	2.0	0.3	23.7	0.23	1.9	0.4	16	LY
8LTYGD	25.2	23.3	23.2	22.8	23.6	0.13	1.3	1.1	23.1	-0.37	1.3	1.0	16	LA
93V444	22.8	23.9	22.5	22.6	22.9	-0.63	1.5	0.6	23.0	-0.45	1.6	0.6	16	LA
A3VH6F	22.2	22.1	21.8	21.6	21.9	-1.74	1.6	0.2	22.2	-1.27	1.6	0.4	16	LY
B82ED9	23.3	24.1	23.8	23.8 L	23.8	0.27	1.1	0.4	23.4	-0.06	1.2	0.3	16	TT
BANXE7	23.2	22.4	23.6	23.1	23.1	-0.47	1.4	0.5	23.3	-0.17	1.7	0.5	16	LU
BQD223	19.9 X	18.6 X	18.7 X	20.5 *	19.4	-4.42 X	1.5	1.0	19.1	-4.26 X	1.6	1.6	16	LH
CA4TBC	24.8	25.1	24.1	24.1	24.5	1.12	1.8	0.5	24.9	1.40	2.1	0.9	16	LA
CQ8B74	23.6	22.2	22.7	22.4	22.7	-0.85	1.6	0.6	22.8	-0.64	1.7	0.5	10	LY
CU9EXQ	25.7	24.4	27.3 X	21.0	24.6	1.18	1.7	2.7 H	24.9	1.42	2.2	1.9	12	LA
DAL2Y7	23.2 L	23.7 L	24.1 L	23.6 L	23.6	0.15	0.5	0.4	24.2	0.71	1.3	0.8	16	LA
EM64U4	22.0	21.8 L	22.3	22.0	22.0	-1.61	1.2	0.2	21.8	-1.59	1.2	0.5	16	BK
EPRNT8	23.2	23.8	23.5	23.1	23.4	-0.11	2.0	0.3	23.2	-0.29	1.9	0.4	16	LY
FRQ98Q	25.5	25.6 *	25.6 *	26.2 *	25.7	2.39 *	1.7	0.3	25.6	2.03 *	1.6	0.7	16	LH
G9AKDQ	25.7 *	21.7 *	23.8	24.3	23.9	0.39	1.8	1.7 H	24.4	0.90	1.8	0.9	16	LU
GDKU4Y	23.8	23.3	23.7	23.7	23.6	0.14	1.6	0.2	23.9	0.45	1.7	0.5	16	LA
HJBGQ6	24.4	25.0	24.5	24.6	24.6	1.18	1.7	0.3	24.4	0.93	2.0	0.6	16	LU
HLYYUX	23.8 H	24.4	23.7	23.7	23.9	0.42	2.0	0.3	23.3	-0.14	1.7	0.6	16	LA
J7YGFK	23.6	24.8	24.9	25.3	24.6	1.22	1.7	0.7	24.9	1.37	1.9	0.7	12	LZ
J8VRFT	23.9	23.8	23.5 H	21.6	23.2	-0.34	1.7	1.1	22.4	-1.02	1.6	1.2	16	LZ
JWV7AU	23.3	22.5	23.9	25.1	23.7	0.19	1.6	1.1	23.8	0.36	1.8	1.7	16	LA
K3BD2W	21.9	22.5	22.8	22.6	22.5	-1.14	1.5	0.4	22.4	-1.06	1.6	0.3	16	LZ
K8N83A	24.5	24.3	22.8	24.2	23.9	0.47	1.5	0.8	23.1	-0.36	1.6	1.2	12	LA
KT8796	22.5 L	20.2 X	23.5	21.9	22.0	-1.61	1.3	1.4	28.7	5.07 X	2.5	9.0 H	16	LA
KVXABX	23.6	23.6	23.3	22.9	23.3	-0.20	1.6	0.3	23.1	-0.37	1.5	0.5	16	LU
LAQHE4	22.2	23.7	22.9	22.8	22.9	-0.65	1.7	0.6	22.9	-0.51	1.6	0.5	16	LA
LH4BPZ	23.1	23.6	22.9 L	23.9	23.4	-0.17	1.1	0.5	23.3	-0.22	1.2	0.3	16	TT

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
MV9U2Z	24.3	25.1	25.7 *	24.3	24.8	1.45	1.6	0.7	24.9	1.35	1.6	0.7	16	LH
N3X9WG	22.8	23.3	23.0	23.6	23.2	-0.34	1.6	0.4	22.4	-1.02	1.7	0.7	16	XX
N8VLZU	23.4	23.8	23.2	23.4	23.5	-0.06	1.7	0.3	22.5	-0.92	1.5	1.0	16	LH
ND7G3H	24.5 L	24.3 L	24.4 L	24.8 L	24.5	1.08	0.0	0.2	24.3	0.80	0.0	0.8	16	TT
NNNA8W	24.4 L	24.1	23.0	22.9 L	23.6	0.10	1.1	0.8	24.1	0.59	1.7	0.8	16	LW
NVZANG	25.7 *	24.2	24.1	24.6	24.7	1.26	1.8	0.7	25.0	1.50	1.8	0.6	16	XX
TAN49W	24.8	24.5	24.4	25.4	24.8	1.38	1.7	0.5	24.2	0.66	1.8	0.6	16	LW
TPXWUE	24.7	23.9	23.7	23.9 L	24.0	0.58	1.7	0.4	28.8	5.13 X	1.6	2.9 H	16	XX
UUA4QC	23.6 L	21.5 *	22.7	21.6	22.3	-1.26	1.4	1.0	23.0	-0.50	1.7	0.9	16	LA
VKZ4PM	22.5	23.0	23.4	21.8	22.7	-0.91	1.9	0.7	21.9	-1.49	1.9	1.9	16	LZ
WJLZKP	22.2	23.8	23.2	22.6	23.0	-0.59	1.7	0.7	22.4	-1.06	1.7	5.4 H	16	LA
X3RY2N	23.3	23.5	23.5	23.0	23.3	-0.20	1.7	0.2	23.5	0.04	1.9	1.2	16	LZ
XQ2YMR	23.3	22.7	22.1	22.1	22.5	-1.06	1.6	0.6	22.7	-0.72	1.8	0.5	16	LW
YQUDEP	23.2	23.2 L	22.3	22.8	22.9	-0.69	1.3	0.4	22.6	-0.84	1.6	0.4	16	LA
YWJRDH	24.9	23.9	No Data	No Data	24.4	0.96	1.5	0.7	24.5	1.02	1.7	0.5	14	LW
Z24HW7	25.7 *	24.2	24.1	24.6	24.7	1.26	1.8	0.7	25.0	1.50	1.8	0.6	16	LU
ZA3WXJ	24.4 H	23.8 H	24.2	24.4	24.2	0.76	2.2	0.3	25.5	1.95 *	2.1	1.1	16	LA
ZR6F2N	22.0 L	22.4	21.8	22.0	22.1	-1.58	1.1	0.2	22.1	-1.31	1.5	0.7	16	LA
ZTXD9V	24.4	25.4	25.8 *H	25.2	25.2	1.83	2.0	0.6	24.6	1.05	1.9	1.2	12	LH
ZWXGZH	21.6	22.2 L	21.7	21.5	21.8	-1.91	1.4	0.3	21.2	-2.24 *	1.6	0.6	12	LH

Consensus (All Labs) Results

Wk Mean	23.62	23.56	23.44	23.31	Month Mean	23.51	Grand Mean	23.48
Avg SDr	1.61	1.57	1.69	1.56	Avg SD	1.61	Avg SD	1.70
SD btwn Labs	1.09	0.97	0.95	1.25	SD btwn Labs	0.92	SD btwn Labs	1.03
Labs Incld	54	53	52	54	SD btwn Wks	0.72	SD btwn Wks	1.10
Labs Excld	1	2	2	0	Labs Incld	54	Labs Incld	52
Labs not Rcvd	0	0	1	1				

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
LH	L&W 282	LU	L&W 52 without moisture correction(was 53)
LW	L&W 53 with moisture correction (was 53M)	LY	L&W 152 without moisture correction
LZ	L&W (model not specified)	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2HAWZL	20.5 *	21.3	21.6	21.1	21.1	-2.02 *	1.6	0.5	22.2	-0.52	1.7	1.2	12	LA
34B8JE	23.2 L	22.7	23.9	23.0	23.2	0.39	1.5	0.5	23.3	0.61	1.7	0.7	12	LU
3DVN49	22.7	23.5	22.9	23.0	23.0	0.18	1.8	0.4	22.9	0.16	1.7	0.6	12	LY
4NDG9M	22.9	23.9 H	22.7	22.9	23.1	0.26	1.8	0.5	22.8	0.04	2.0	0.6	12	LA
6D8YYJ	22.3	22.2	22.3	22.1	22.2	-0.74	1.4	0.1	22.3	-0.39	1.4	0.1 L	12	LA
6JDNHC	23.4	23.8	22.9	22.5	23.2	0.32	1.6	0.6	22.7	-0.03	1.6	1.0	9	LY
79QYCC	23.3	22.6	22.1	23.0 L	22.8	-0.14	1.6	0.5	22.7	-0.06	1.5	0.4	8	LA
7G6V2J	22.4 L	22.9	22.3	22.4	22.5	-0.40	1.4	0.3	22.1	-0.65	1.7	0.6	12	LW
7RHZ9E	22.5	22.5	23.0	23.1	22.8	-0.08	1.7	0.3	22.5	-0.20	1.6	0.4	12	LY
8LTYGD	22.0	21.4	21.7	20.6 *L	21.4	-1.66	1.6	0.6	21.4	-1.39	1.4	0.7	12	LA
93V444	22.4	23.3	23.3	23.4	23.1	0.24	1.7	0.4	22.8	0.14	1.7	0.4	12	LU
A3VH6F	21.0	21.1	20.6 *	21.1	21.0	-2.20 *	1.7	0.2	21.1	-1.67	1.6	0.4	12	LY
B82ED9	23.2 L	23.0 L	23.0	23.0 L	23.1	0.20	0.9	0.1 L	22.5	-0.19	1.1	0.6	12	TT
BANXE7	22.9	22.9	23.1	23.2	23.0	0.15	1.5	0.1	22.8	0.06	1.6	0.4	12	LU
BQD223	20.7 *	19.6 X	17.9 X	19.8 X	19.5	-3.87 X	1.6	1.2 H	19.4	-3.46 X	2.0	0.8	12	LH
CA4TBC	23.1	22.3 H	24.3 H	23.5	23.3	0.48	2.3	0.8	23.0	0.34	2.1	0.7	12	LA
CQ8B74	21.6	21.7	21.8	21.7	21.7	-1.37	1.7	0.1 L	22.0	-0.70	1.6	0.8	9	LY
CU9EXQ	24.7	24.5	22.9	24.4	24.1	1.43	1.6	0.8	23.9	1.23	1.5	0.9	8	LA
DAL2Y7	24.7 L	23.6 L	23.8 L	24.2 L	24.1	1.39	0.5	0.5	22.5	-0.17	0.9	1.5	12	LA
EM64U4	21.3	21.0 *L	21.4 L	21.6	21.3	-1.80	1.3	0.3	20.8	-1.97 *	1.2	0.5	12	BK
EPRNT8	23.2 H	23.0	22.9	22.7	23.0	0.10	2.0	0.2	22.5	-0.21	1.8	0.5	12	LU
FRQ98Q	26.1 X	25.9 XL	25.9 *	25.6 X	25.9	3.44 X	1.4	0.2	25.7	3.12 X	1.4	0.6	12	LH
G9AKDQ	22.5	23.1	24.0	23.1	23.2	0.33	1.6	0.6	22.8	0.12	1.6	0.7	8	LU
GDKU4Y	23.7	23.5	24.1	24.3	23.9	1.18	1.8	0.4	23.8	1.14	1.7	0.3 L	12	LA
HJBGQ6	23.7	23.9	24.7	23.9	24.0	1.33	1.8	0.4	23.5	0.83	1.7	0.7	12	LU
HLYYUX	22.8	22.1	23.2	23.2	22.8	-0.04	1.7	0.5	22.3	-0.46	1.5	0.6	12	LA
J7YGFK	24.5	24.6	24.8	24.5 H	24.6	1.96 *	2.1	0.1	24.5	1.87	2.2	0.8	8	LZ
J8VRFT	23.1	22.3	22.7	21.4	22.4	-0.56	1.3	0.7	21.8	-0.95	1.5	0.7	12	LZ
JWV7AU	23.1	21.2	22.3	23.3	22.5	-0.45	1.8	1.0	24.2	1.53	1.6	6.7 H	11	LA
K3BD2W	21.4	21.6	21.7	21.4	21.5	-1.56	1.4	0.1	21.6	-1.16	1.6	0.5	12	LZ
K8N83A	22.1	23.6	22.1	22.6	22.6	-0.32	1.5	0.7	22.2	-0.48	1.6	0.7	12	LA
KT8796	23.0	24.5	24.8	21.6	23.5	0.67	1.8	1.5 H	25.2	2.60 *	2.1	4.3 H	11	LA
KVXABX	23.5	22.3	22.3	22.4	22.6	-0.27	1.4	0.6	22.3	-0.45	1.5	0.7	12	LW
LAQHE4	21.1	22.0	22.3	21.6	21.7	-1.31	1.9	0.5	21.9	-0.80	1.7	0.4	12	LA
LH4BPZ	22.6	23.4 L	22.3	22.8	22.8	-0.10	1.2	0.5	22.5	-0.22	1.2	0.4	12	TT

Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
MV9U2Z	23.4	24.6	24.6	23.4	24.0	1.27	1.5	0.7	24.3	1.62	1.6	0.7	12	LH
N3X9WG	22.9	22.3 L	23.1	22.9	22.8	-0.09	1.4	0.4	22.9	0.17	1.8	0.8	12	XX
N8VLZU	22.7	23.4	22.7	23.1	23.0	0.12	1.6	0.3	21.9	-0.85	1.5	1.0	12	LH
ND7G3H	24.8 *L	24.0 L	23.5 L	24.4 L	24.2	1.48	0.0	0.6	23.1	0.42	0.0	1.6	12	LZ
NNNA8W	23.6	23.9	22.6	22.5	23.2	0.32	1.4	0.7	23.5	0.79	1.6	0.7	12	LW
NVZANG	23.7	23.7	24.2	23.0	23.7	0.89	1.8	0.5	23.9	1.18	1.8	0.4	8	XX
TAN49W	23.6	23.7	23.6	23.8	23.7	0.93	1.9	0.1	23.3	0.63	1.8	0.5	12	LW
TPXWUE	23.6 L	23.3 L	24.1	23.1	23.5	0.74	1.4	0.5	26.4	3.84 X	1.7	4.0 H	12	XX
UUA4QC	22.7	22.4	22.4	21.8 H	22.3	-0.66	1.7	0.4	22.1	-0.67	1.6	0.5	12	LA
VKZ4PM	21.3	23.5	22.4	22.7	22.5	-0.45	1.8	0.9	20.8	-2.00 *	1.7	1.9	12	LZ
WJLZKP	22.8	22.7	22.0	23.1	22.7	-0.25	1.9	0.4	22.9	0.15	1.7	0.5	12	LA
X3RY2N	22.6	22.1	23.0	22.3	22.5	-0.43	1.6	0.4	22.9	0.21	1.6	0.7	12	LZ
XQ2YMR	21.5	21.8	21.6	21.5	21.6	-1.46	1.8	0.2	21.7	-1.01	1.7	0.5	12	LW
YQUDEP	22.1	23.7	23.2	22.6	22.9	-0.01	1.8	0.7	22.3	-0.41	1.6	0.6	12	LW
YWJRDH	22.8	23.4	No Data	No Data	23.1	0.28	1.8	0.4	23.5	0.79	1.7	0.6	10	LW
Z24HW7	23.7	23.7	24.2	23.0	23.7	0.89	1.8	0.5	23.9	1.18	1.8	0.4	8	LU
ZA3WXJ	23.2	23.7	23.3	23.4	23.4	0.60	1.5	0.2	24.1	1.43	1.7	1.6	12	LA
ZR6F2N	21.3 L	21.8	21.6	23.8	22.1	-0.86	1.5	1.1 H	21.6	-1.17	1.6	0.9	12	LA
ZTXD9V	24.5 H	24.7	26.0 *	24.1	24.8	2.23 *	2.3	0.8	23.7	1.06	2.0	1.1	12	LH
ZWXGZH	21.5	22.3 H	21.4	22.3	21.9	-1.14	1.8	0.5	21.2	-1.55	1.8	0.8	12	LH

Consensus (All Labs) Results

Wk Mean	22.77	22.94	23.00	22.80	Month Mean	22.87	Grand Mean	22.71
Avg SDr	1.61	1.71	1.59	1.71	Avg SD	1.65	Avg SD	1.65
SD btwn Labs	1.03	0.99	1.15	0.94	SD btwn Labs	0.87	SD btwn Labs	0.96
Labs Incld	54	53	53	52	SD btwn Wks	0.56	SD btwn Wks	1.35
Labs Excld	1	2	1	2	Labs Incld	53	Labs Incld	52
Labs not Rcvd	0	0	1	1				

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
LH	L&W 282	LU	L&W 52 without moisture correction (was 53)
LW	L&W 53 with moisture correction (was 53M)	LY	L&W 152 (was 52M)
LZ	L&W (model not specified)	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2HAWZL	150.0	-0.08	12.69		138.8	-0.62	13.66	3	EV
3DVN49	156.3	0.16	15.21		156.1	-0.10	1.21 L	3	EV
6D8YYJ	152.7	0.02	14.70		152.5	-0.21	0.49 L	3	XX
74XULT	142.8	-0.35	18.14		141.9	-0.53	5.56	3	XX
A3VH6F	147.8	-0.16	17.37		149.0	-0.31	1.17 L	3	EV
CA4TBC	120.6	-1.18	6.36	L	125.7	-1.01	8.46	3	LA
DAL2Y7	181.3	1.10	27.22		206.1	1.41	35.01	3	LA
G9AKDQ	264.5	4.23 X	61.82	H	241.6	2.48 *	24.07	3	EV
GDKU4Y	128.9	-0.87	9.96	L	130.1	-0.88	10.55	3	LA
HJBGQ6	146.0	-0.23	17.17		151.4	-0.24	6.34	3	EV
HLYYUX	217.3	2.45 *	45.45	H	193.1	1.02	57.15 H	3	LA
J7YGFK	178.9	1.01	19.43		230.3	2.14 *	72.62	2	XX
J8VRFT	135.4	-0.63	10.69		166.1	0.20	67.08 H	3	LA
JWV7AU	148.8	-0.12	22.08		140.5	-0.57	7.39	3	LA
K3BD2W	141.0	-0.42	10.96		139.5	-0.60	5.24	3	LA
K8N83A	183.1	1.17	48.65	H	164.8	0.16	17.17	3	LA
KT8796	144.2	-0.29	17.12		143.1	-0.49	1.63	2	LA
LAQHE4	129.1	-0.86	16.92		126.4	-1.00	2.42 L	3	LS
PVFT9E	168.1	0.60	47.16	H	171.1	0.35	9.71	3	EV
RY8286	211.1	2.22 *	22.99		186.1	0.81	50.90 H	3	LA
T2QFB6	115.5	-1.37	11.74		130.0	-0.88	15.96	3	EV
XQ2YMR	135.7	-0.62	14.98		138.2	-0.64	7.24	3	EV
YQUDEP	142.6	-0.36	20.76		145.0	-0.43	8.21	3	LA
YWJRDH	145.6	-0.24	9.00	L	148.1	-0.34	2.41 L	3	XX
Z24HW7	238.1	3.24 X	15.39		220.7	1.85	15.49	3	EV
ZA3WXJ	168.2	0.61	21.71		161.3	0.06	8.08	3	EV
ZR6F2N	159.1	0.27	39.17	H	158.7	-0.02	0.41 L	3	LA
ZTXD9V	103.0	-1.84	12.70		113.0	-1.40	16.90	3	EV

Consensus (All Labs) Results

Month Mean	152.04	Grand Mean	159.37
Avg SD	23.47	Avg SD Months	23.44
SD btwn Labs	26.60	SD btwn Labs	33.16
Labs Incld	26	Labs Incld	27

Key to Instrument Codes Reported by Participants

EV	Emveco Microgage Model 210-R	LA	L&W Autoline
LS	L&W 263	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42F1

TAPPI Official Test Method T538

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
4NDG9M	354.8	-0.27	10.08		355.9	-0.23	1.54	4	LA
74XULT	353.8	-0.41	6.00		354.3	-0.50	1.62	4	LA
79QYCC	368.3	1.67	7.59		364.3	1.17	8.05	3	XX
BANXE7	360.3	0.52	9.89		362.4	0.86	1.92	4	XX
CQ8B74	354.2	-0.35	3.43	L	365.9	1.45	10.15 H	3	PP
CU9EXQ	367.8	1.60	12.04		361.5	0.72	5.75	3	XX
K8N83A	358.4	0.25	10.95		355.3	-0.33	2.73	3	LA
LAQHE4	349.7	-1.00	7.77		349.8	-1.25	1.81	4	LA
T7MWPK	344.4	-1.76	7.43		346.1	-1.87 *	2.95	4	XX
WJLZKP	359.1	0.35	7.68		358.0	0.13	0.83	4	LA
X3RY2N	362.0	0.77	11.84		360.5	0.54	1.97	4	XX
ZTDRHQ	349.8	-0.99	7.42		353.2	-0.68	7.04	4	LA
ZTXD9V	354.0	-0.38	9.12		290.9	-11.11 X	114.67 H	3	LA

Consensus (All Labs) Results

Month Mean	356.66	Grand Mean	357.25
Avg SD	8.87	Avg SD Months	4.86
SD btwn Labs	6.96	SD btwn Labs	5.98
Labs Incld	13	Labs Incld	12

Key to Instrument Codes Reported by Participants

LA	L & W Roughness Sheffield - Autoline	PP	Technidyne Profile/Plus
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 42 lb Linerboard - 42D

TAPPI Official Test Method T569

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2HAWZL	101.6	-0.09	9.96		107.0	0.28	7.56	4	TM
3DVN49	90.2	-0.86	7.46		97.0	-0.56	7.42	4	XX
4KD7CM	89.4	-0.92	3.13		95.9	-0.65	5.75	3	SC
4NDG9M	93.7	-0.62	3.03		89.0	-1.23	4.85	4	SC
74XULT	105.8	0.20	5.17		107.6	0.33	1.71	4	HY
79QYCC	103.2	0.02	5.26		99.7	-0.33	3.72	3	TM
8LTYGD	95.4	-0.51	6.88		98.1	-0.47	5.62	4	TM
93V444	105.8	0.20	5.40		102.8	-0.08	2.17	4	HZ
BANXE7	111.4	0.58	3.38		112.8	0.77	2.37	4	HY
CQ8B74	112.4	0.64	6.54		115.5	1.00	2.86	3	HY
CU9EXQ	89.6	-0.90	3.36		89.6	-1.18	0.41 L	3	SC
G9AKDQ	67.0	-2.43 *	11.20		63.8	-3.35 X	2.39	4	TM
H6AP6Z	117.8	1.01	4.66		117.7	1.18	1.53	4	SC
HJBGQ6	90.6	-0.83	8.20		91.0	-1.06	0.85 L	4	TM
HLYYUX	103.8	0.06	5.72		100.3	-0.28	3.61	4	TM
JMK6NU	119.0	1.09	5.43		102.2	-0.13	21.87 H	4	TM
LAQHE4	107.9	0.34	9.49		103.9	0.02	3.13	4	TM
PVFT9E	125.8	1.55	4.66		115.2	0.97	9.01	4	HY
VKZ4PM	87.4	-1.05	5.10		82.5	-1.78	4.72	4	SC
WJLZKP	49.3	-3.63 X	1.14 L		49.2	-4.58 X	0.75 L	4	LZ
YQUDEP	125.0	1.50	14.00 H		127.8	2.03 *	7.59	4	HY
Z24HW7	86.8	-1.09	8.53		89.2	-1.22	3.40	4	TM
ZA3WXJ	117.0	0.96	4.47		116.0	1.04	2.65	3	SC
ZR6F2N	120.0	1.16	7.91		119.6	1.34	5.51	4	SC

Consensus (All Labs) Results

Month Mean	102.89	Grand Mean	103.64
Avg SD	7.03	Avg SD Months	6.57
SD btwn Labs	14.76	SD btwn Labs	11.87
Labs Incld	23	Labs Incld	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	101.74	14.78	1.16	20
Modified Scott Bond Mechanics	118.20	9.62	15.31	2

Analysis Notes

WJLZKP - Method used is not covered in this test. Data excluded from consensus calculation.

Key to Instrument Codes Reported by Participants

HY	Huygen Digitized Scott Internal Bond Tester	HZ	Huygen Internal Bond Tester with AccuPress
LZ	L&W (model not specified)	SC	Scott Internal Bond Tester (Manual)
TM	TMI Monitor/Internal Bond Tester	XX	Instrument make/model not specified by lab

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV		SD	Mean	CPV		SD Months	Months
2HAWZL	32.4	2.05	*	3.78	32.1	2.24	*	0.46	3
3DVN49	19.5	-2.31	*	2.50	20.8	-2.37	*	2.64	3
6D8YYJ	25.6	-0.25		1.14	25.4	-0.49		0.53	3
79QYCC	27.7	0.47		1.12	27.4	0.33		0.41	2
A3VH6F	25.5	-0.29		0.65	24.9	-0.68		0.64	3
BANXE7	24.2	-0.71		1.90	25.4	-0.51		2.45	3
CQ8B74	26.1	-0.08		1.95	26.0	-0.24		0.50	3
CU9EXQ	28.4	0.70		1.14	28.2	0.64		0.28	2
G9AKDQ	25.0	-0.45		3.46	25.1	-0.63		0.70	3
GDKU4Y	29.1	0.94		3.14	29.6	1.21		1.57	3
H6AP6Z	25.4	-0.31		3.91	26.0	-0.25		5.33	H 3
HJBGQ6	29.8	1.17		3.11	29.9	1.32		1.70	3
HLYYUX	29.8	1.17		3.49	27.5	0.35		2.21	3
HZFT9A	26.2	-0.04		2.95	26.7	0.02		0.99	3
J7YGFK	25.0	-0.45		1.22	24.7	-0.78		0.42	2
JNZDR2	24.8	-0.52		3.35	28.2	0.64		4.81	2
K3BD2W	25.6	-0.24		0.69	24.5	-0.84		1.68	3
K8N83A	25.4	-0.31		2.41	27.9	0.51		2.25	3
LAQHE4	25.6	-0.25		4.04	26.1	-0.21		0.46	3
N8VLZU	30.6	1.44		2.61	29.7	1.24		0.95	3
NVZANG	27.4	0.36		2.88	25.1	-0.63		2.02	3
P4AX2F	28.6	0.77		3.91	28.0	0.56		0.87	3
TAN49W	24.2	-0.72		2.77	27.3	0.27		3.10	3
WJLZKP	19.9	-2.17	*	1.43	25.4	-0.49		5.66	H 3
X3RY2N	27.2	0.29		1.64	29.3	1.09		2.97	3
XQ2YMR	21.0	-1.80		4.30	22.3	-1.74		1.40	3
YQUDEP	30.6	1.44		3.78	29.1	1.00		2.00	3
YWJRDH	28.4	0.70		3.05	27.6	0.40		0.80	3
Z24HW7	26.6	0.09		2.88	25.2	-0.57		2.78	3
ZA3WXJ	24.2	-0.72		1.48	22.0	-1.87		1.91	3
ZR6F2N	36.0	3.26	X	2.58	35.3	3.51	X	1.42	3
ZTXD9V	26.4	0.02		2.88	27.7	0.46		1.40	3

Consensus (All Labs) Results

Month Mean	26.33	Grand Mean	26.61
Avg SD	2.78	Avg SD Months	2.29
SD btwn Labs	2.96	SD btwn Labs	2.46
Labs Incld	31	Labs Incld	31

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2HAWZL	18.6	0.04	1.18		18.5	0.12	0.28	4	LP
3DVN49	19.4	0.53	0.59	L	24.2	4.92 X	11.07 H	4	LP
4NDG9M	18.1	-0.29	0.74		18.6	0.17	1.10	4	LA
6D8YYJ	18.8	0.12	1.85		18.6	0.18	0.19	4	LA
74XULT	17.9	-0.45	1.53		18.3	-0.08	0.65	4	LP
79QYCC	19.2	0.37	0.96		18.0	-0.35	1.06	3	LA
7RHZ9E	19.9	0.86	1.29		19.7	1.12	0.17	4	LP
BANXE7	17.3	-0.84	2.80	H	18.3	-0.09	0.73	4	TP
CA4TBC	18.9	0.18	1.86		18.4	-0.03	0.89	4	LA
CQ8B74	19.9	0.87	1.74		18.0	-0.34	1.67	3	TP
DAL2Y7	18.1	-0.35	1.22		20.5	1.75	1.80	4	LA
G9AKDQ	19.6	0.69	2.68	H	19.0	0.48	0.52	4	LA
HLYYUX	21.2	1.70	1.40		20.7	1.90	0.60	4	LA
HZFT9A	16.5	-1.34	1.23		17.0	-1.16	0.86	4	LA
J7YGFK	20.0	0.94	2.83	H	18.2	-0.18	1.96 H	3	TD
K3BD2W	17.6	-0.64	0.81		18.2	-0.13	0.65	4	LP
K8N83A	15.3	-2.13 *	1.00		15.8	-2.18 *	0.60	3	LA
KCG7FK	18.0	-0.38	1.15		18.1	-0.22	0.15 L	3	XX
KT8796	17.5	-0.70	1.43		17.1	-1.11	0.51	3	LA
LAQHE4	18.2	-0.26	1.68		18.4	0.00	0.36	4	LA
LPYDRC	21.4	1.86	2.05		20.9	2.14 *	0.41	4	GA
NCLXVQ	19.2	0.40	1.48		18.6	0.17	1.04	4	GG
NVZANG	17.5	-0.72	1.32		18.0	-0.32	0.49	4	LA
TAN49W	18.9	0.23	0.97		18.0	-0.37	0.77	4	LP
U6RV3T	15.7	-1.90	1.66		16.8	-1.36	1.75	3	GA
VMMNNR	18.0	-0.39	1.46		17.3	-0.89	0.45	4	LP
WJLZKP	21.2	1.69	1.55		25.7	6.15 X	10.24 H	4	LA
X3RY2N	20.8	1.47	2.14		20.0	1.37	1.33	4	GA
XQ2YMR	17.2	-0.90	1.23		17.5	-0.79	1.27	4	XX
XRR9H2	19.6	0.67	1.25		18.6	0.15	0.87	4	LP
YQUDEP	19.8	0.79	0.92		19.6	1.02	1.40	4	LP
Z24HW7	19.0	0.28	0.87		19.7	1.09	1.14	4	LA
ZA3WXJ	15.6	-1.95 *	1.96		16.1	-1.96 *	0.40	4	LA
ZR6F2N	17.6	-0.65	1.33		18.3	-0.10	0.87	4	LA
ZTXD9V	18.9	0.21	2.54		18.4	0.02	0.55	3	LP

Containerboard Interlaboratory Testing Program
Analysis 237
Air Resistance, 42 lb Linerboard - 42D
TAPPI Official Test Method T460

Consensus (All Labs) Results

Month Mean	18.58	Grand Mean	18.40
Avg SD	1.61	Avg SD Months	0.96
SD btwn Labs	1.53	SD btwn Labs	1.19
Labs Incld	35	Labs Incld	33

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
LA	L&W Autoline	LP	L&W Air Permeance Tester SE 166
TD	TMI Gurley Densometer	TP	Technidyne Profile/ plus Roughness & Porosity
XX	Instrument make/model not specified by lab		

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2C63XD	63.8	57.2 H	58.4	60.1	59.9	0.76	9.2	2.9	59.2	0.56	6.8	2.6	16	LC
3DVN49	59.5	57.5	59.2	57.9	58.5	0.22	3.3	1.0	58.8	0.38	3.6	1.2	16	LZ
3YDQ7K	60.1	60.3	60.2	60.2	60.2	0.88	2.5	0.1 L	59.4	0.64	2.6	0.7 L	16	EM
638KPJ	59.0	58.0	57.7	57.1	58.0	0.01	3.2	0.8	57.6	-0.10	3.0	0.6 L	16	LC
6D8YYJ	58.8	58.5 L	58.0	57.8	58.3	0.13	1.6	0.5	58.3	0.20	1.9	0.4 L	16	LD
6JDNHC	56.4	55.8	55.3	57.8	56.3	-0.63	4.4	1.0	56.8	-0.43	4.0	2.0	12	LD
6K4Y96	60.7	60.6	60.4	60.2	60.5	0.99	3.7	0.2 L	60.5	1.07	3.7	0.2 L	16	LD
74XULT	No Data	58.5 L	No Data	No Data	58.5	0.22	2.0	0.0	56.6	-0.50	2.7	1.4	4	XX
8HAR4Y	64.0	62.2	66.4 *	63.7 *	64.1	2.40 *	3.9	1.7	63.3	2.21 *	4.3	3.9	16	LC
8LTYGD	61.3	57.4 L	56.0	63.2	59.5	0.60	2.9	3.3 H	60.3	1.00	3.6	2.5	16	LC
93V444	57.3	58.0	59.5	54.6	57.4	-0.23	3.0	2.0	56.2	-0.67	3.6	2.0	16	LD
A3VH6F	60.0	58.0	57.6	58.6	58.5	0.23	3.9	1.0	58.0	0.07	3.3	1.2	16	EN
B82ED9	59.8	59.3	58.5	58.3	59.0	0.40	4.3	0.7	58.6	0.29	4.6	0.6 L	16	TG
BANXE7	57.9	59.4	59.0	56.9	58.3	0.15	3.3	1.1	59.4	0.64	3.5	1.6	16	LC
CQ8B74	56.2	57.3	58.1	57.8	57.4	-0.23	3.9	0.9	56.1	-0.72	4.2	1.6	10	LD
DAL2Y7	51.8 *	50.5 X	52.7	54.9	52.5	-2.14 *	4.0	1.8	54.3	-1.43	5.8	2.9	16	TU
EPRNT8	61.9 H	60.1	58.2	59.1	59.8	0.74	4.7	1.6	58.9	0.44	4.5	1.7	16	LD
FRQ98Q	52.3	54.7	53.5	54.9	53.8	-1.60	3.2	1.2	54.2	-1.50	3.0	1.1	16	LD
G9AKDQ	57.7	59.0	57.2 H	56.7	57.7	-0.11	4.4	1.0	55.3	-1.05	4.1	2.4	15	XX
H6AP6Z	59.4	57.8	56.3	56.1	57.4	-0.22	4.0	1.6	55.9	-0.78	4.0	1.7	16	LZ
HJBGQ6	50.8 *	49.8 X	51.9	52.9	51.4	-2.58 *	2.9	1.3	55.2	-1.07	3.4	2.9	16	LD
HLYYUX	58.6	57.2	56.1	54.1	56.5	-0.56	3.8	1.9	59.1	0.51	4.6	3.7	16	LD
J8VRFT	56.2	53.7 *	50.8 *	59.5	55.1	-1.13	3.6	3.7 H	55.2	-1.07	3.7	2.3	16	LD
JWV7AU	52.7	63.4 *H	52.6	54.8	55.9	-0.80	6.1	5.1 H	54.5	-1.36	4.3	3.9	16	MB
K3BD2W	57.0	56.8	55.4	58.6	56.9	-0.40	4.0	1.3	57.0	-0.36	3.8	1.7	16	LZ
K8N83A	57.9	60.9	60.8	57.5	59.3	0.52	4.3	1.8	57.9	0.03	4.1	2.5	12	LD
KT8796	54.4	No Data	55.1	56.0	55.2	-1.09	4.4	0.8	47.5	-4.23 X	5.4	10.9 H	15	MB
KULGJQ	60.6	60.6 L	61.3	60.6	60.7	1.10	2.2	0.3	54.7	-1.28	2.1	12.9 H	16	TU
KVXABX	58.2	57.6	56.9	56.4	57.3	-0.26	3.1	0.8	58.2	0.12	3.3	1.7	16	LZ
LH4BPZ	59.3	60.3	58.0	58.7	59.1	0.45	3.6	1.0	59.2	0.54	3.9	1.4	16	TJ
MV9U2Z	60.6	61.2	61.4	58.2	60.4	0.94	4.8	1.5	60.6	1.10	4.4	1.6	16	LD
N3X9WG	63.3	64.5 *	62.3	61.9	63.0	1.98 *	2.9	1.1	62.5	1.88	4.5	1.6	16	LD
N8VLZU	55.2	58.2	55.9	59.9	57.3	-0.25	3.1	2.2	56.4	-0.59	3.1	1.8	16	LD
ND7G3H	56.3	58.0	54.7	55.5	56.1	-0.72	3.6	1.4	54.4	-1.39	3.5	2.4	16	EM
NNNA8W	60.1	60.5	59.3	61.0	60.2	0.89	3.1	0.7	60.4	1.02	2.9	1.4	16	LD

Containerboard Interlaboratory Testing Program

Analysis 240

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T809

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
TAN49W	61.8	57.4	59.3	61.0	59.9	0.75	2.9	2.0	60.6	1.12	3.4	1.3	16	LD
TPXWUE	70.4 XL	68.9 XL	67.1 *L	71.0 XL	69.3	4.46 X	1.0	1.8	64.3	2.61 *	2.9	3.8	16	XX
TZZ7EV	57.9	57.6	58.4	58.8	58.2	0.09	3.2	0.5	57.7	-0.07	3.1	0.6 L	16	LD
U6RV3T	59.1 H	58.7	55.5	58.9 H	58.0	0.04	5.2	1.7	57.2	-0.27	4.4	3.0	12	LD
VKZ4PM	54.2	58.3	54.1	52.6	54.8	-1.23	3.8	2.5	56.6	-0.52	3.6	2.1	16	LC
VMMNNR	57.1	58.9	57.4	58.0	57.8	-0.04	3.3	0.8	57.8	-0.03	3.3	1.3	16	LD
W3UAH2	46.3 X	46.9 X	43.1 X	43.6 X	45.0	-5.08 X	3.9	1.9	44.7	-5.36 X	4.3	5.1	16	TC
W6X624	58.1 L	58.4 L	58.2	58.3 L	58.2	0.12	1.6	0.1 L	58.1	0.10	1.3	0.2 L	16	LD
WJLZKP	57.1	57.9	54.9	53.5	55.8	-0.82	3.5	2.0	54.0	-1.56	3.5	2.8	16	LD
X3RY2N	58.9	58.9 L	58.2 L	56.7	58.2	0.09	1.8	1.0	57.0	-0.36	2.9	1.2	16	LZ
XCXJPQ	55.9	54.9	55.9	57.3	56.0	-0.75	2.6	1.0	56.4	-0.58	3.0	1.3	16	TH
XRR9H2	57.0	55.5 L	56.4	54.4	55.8	-0.83	2.8	1.2	56.8	-0.44	3.2	1.5	16	LD
Y4C9MA	66.6 *	63.8 *L	61.5 L	64.2 *	64.0	2.39 *	1.7	2.1	59.9	0.83	3.0	2.8	16	MB
YQUDEP	56.0	56.2	59.0	56.5	56.9	-0.40	3.1	1.4	56.5	-0.55	3.5	1.3	16	LD
Z24HW7	57.7	59.0	57.2 H	56.7	57.7	-0.11	4.4	1.0	55.3	-1.06	4.2	2.3	16	LC
ZC7DFB	67.6 X	67.1 X	66.5 *	64.2 *H	66.4	3.29 X	5.0	1.5	63.3	2.21 *	4.8	3.0	16	EM
ZHBJQ8	59.3	59.6	59.1	59.6	59.4	0.57	2.8	0.3 L	60.0	0.88	2.5	0.6 L	16	LD
ZN8TGL	58.9	61.1	63.3	60.7	61.0	1.20	4.3	1.8	58.6	0.31	3.6	2.4	16	LD
ZWXGZH	53.4	52.6 *	53.9	53.8	53.4	-1.76	3.7	0.6	55.4	-1.01	3.6	1.6	12	EN

Consensus (All Labs) Results

Wk Mean	58.16	58.56	57.90	57.97	Month Mean	57.94	Grand Mean	57.86
Avg SDr	3.40	4.61	3.50	3.62	Avg SD	3.76	Avg SD	3.72
SD btwn Labs	3.17	2.39	3.45	2.83	SD btwn Labs	2.56	SD btwn Labs	2.46
Labs Incld	50	48	52	51	SD btwn Wks	1.67	SD btwn Wks	2.72
Labs Excld	3	5	1	2	Labs Incld	51	Labs Incld	52
Labs not Rcvd	1	1	1	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TC	TMI Monitor/Compression Tester, 17-37	TG	TMI Compression Tester, Model 17-10
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 250

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T843

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
638KPJ	68.3	67.2	67.6	68.8	68.0	-0.31	4.9	0.7	68.0	-0.23	3.8	0.5	16	LD
6D8YYJ	69.1	68.3	68.4	68.4	68.6	-0.05	1.9	0.4	68.7	0.11	1.8	0.3 L	16	LD
BANXE7	70.7	71.7	68.1	69.7	70.0	0.63	3.2	1.5	70.1	0.74	3.3	2.0	16	LC
CQ8B74	69.2	67.7	70.0	69.8	69.2	0.24	3.5	1.1	69.3	0.37	3.4	1.0	10	LD
EM64U4	67.7 H	65.5	65.9	70.0 H	67.3	-0.63	5.8	2.1	66.7	-0.85	4.7	2.5	16	LD
HLYYUX	65.2	66.6	64.9	65.1	65.4	-1.47	3.5	0.8	63.8	-2.16 *	3.5	1.7	16	LD
K3BD2W	69.2	68.3	67.9	66.4	67.9	-0.33	4.1	1.2	68.3	-0.11	4.0	1.3	16	LZ
KCG7FK	68.2 L	68.6 L	68.9 L	68.5 L	68.5	-0.06	1.2	0.3	68.2	-0.16	1.6	0.3 L	12	LZ
KVXABX	69.9	70.4	66.9	70.7	69.5	0.38	3.6	1.8	70.2	0.75	3.1	1.5	16	LZ
NNNA8W	67.9	68.1	67.7	68.9	68.1	-0.24	1.8	0.5	68.2	-0.17	2.1	0.7	16	LD
TAN49W	69.8	71.0	69.9	69.9	70.2	0.68	3.0	0.6	70.1	0.72	3.8	1.3	16	LD
TPXWUE	69.6 L	69.5 L	70.9 L	72.2 L	70.6	0.87	0.9	1.3	69.8	0.61	3.1	2.4	16	XX
VMMNNR	66.9	71.4	69.9	71.0	69.8	0.51	4.0	2.0	70.6	0.94	3.8	1.8	16	LD
W6X624	68.5	68.3	68.4 L	68.6	68.4	-0.10	1.8	0.1 L	68.4	-0.05	1.6	0.3 L	16	LD
WE7C7J	65.8	61.4 *H	65.5	62.8 *	63.8	-2.20 *	6.6	2.1	64.7	-1.75	4.9	2.6	12	TH
WJLZKP	70.1	67.8	69.8	68.7	69.1	0.20	3.5	1.0	68.5	0.00	3.7	2.1	16	LD
XRR9H2	68.8	69.2	67.1 H	68.5	68.4	-0.12	3.8	0.9	67.2	-0.63	3.5	1.4	16	LD
Y4C9MA	64.7 *	64.1	65.7	67.6	65.5	-1.43	1.9	1.5	66.1	-1.13	2.1	1.2	16	MB
YQUDEP	74.1 X	73.7 *	73.8 *	75.1 *	74.2	2.51 *	3.1	0.6	73.5	2.28 *	3.0	1.2	16	LD
Z24HW7	68.8	69.7	72.0	72.2	70.7	0.92	4.2	1.7	70.0	0.70	4.1	2.1	16	XX

Consensus (All Labs) Results

Wk Mean	68.34	68.41	68.46	69.14	Month Mean	68.66	Grand Mean	68.52
Avg SDr	3.05	4.17	3.59	3.49	Avg SD	3.60	Avg SD	3.38
SD btwn Labs	1.65	2.76	2.26	2.63	SD btwn Labs	2.19	SD btwn Labs	2.18
Labs Incld	19	20	20	20	SD btwn Wks	1.26	SD btwn Wks	1.58
Labs Excld	1	0	0	0	Labs Incld	20	Labs Incld	20
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TH	TMI Compression Tester, Model 17-76	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2C63XD	46.8	44.7	44.5	47.0 *	45.8	1.21	2.7	1.3	44.9	0.87	3.4	2.6	16	LC
3YDQ7K	41.9	42.4 L	42.1	41.6 L	42.0	-0.44	1.5	0.3 L	41.7	-0.21	1.7	0.5 L	16	LC
6D8YYJ	41.5	42.1	41.5	41.8	41.7	-0.55	2.1	0.3 L	41.9	-0.14	2.5	0.8	16	LD
6K4Y96	45.2	45.2	45.2	45.2	45.2	0.96	2.4	0.0 L	45.4	1.06	2.8	0.3 L	16	LD
8HAR4Y	25.1 X	27.2 X	28.1 X	27.6 X	27.0	-7.01 X	2.7	1.3	31.0	-3.87 X	2.9	3.2	16	XX
93V444	42.3	44.6	47.4	43.9	44.6	0.69	2.6	2.2	43.7	0.46	3.0	1.5	16	LD
A4KR2P	38.9	40.4	38.0 H	42.7 H	40.0	-1.32	5.2	2.1	37.0	-1.82	6.1	3.3	16	TX
BANXE7	45.3	43.9	42.5	43.1	43.7	0.30	3.5	1.2	43.7	0.47	3.2	1.3	16	LC
CQ8B74	43.7	42.1	43.4	42.8	43.0	0.00	4.1	0.7	44.1	0.60	3.7	1.1	10	LD
DYY7MY	43.2	41.0	43.0	41.9	42.3	-0.31	4.1	1.0	42.9	0.18	4.5	1.3	16	XX
J8VRFT	43.6	42.7	42.0	40.2	42.1	-0.37	2.8	1.4	41.3	-0.37	3.4	1.4	16	LD
KT8796	43.1	59.3 X	47.9	40.3	47.6	2.04 *	3.2	8.4 H	46.7	1.51	3.3	7.7 H	16	MB
KULGJQ	41.4	42.1 L	41.4	42.5	41.9	-0.50	1.8	0.5	39.2	-1.08	1.8	3.9	16	TU
ND7G3H	42.4	40.1	41.0	40.0	40.9	-0.93	2.8	1.1	39.6	-0.93	3.0	2.0	16	EM
NF7KU6	37.8	41.3	39.8	41.0	40.0	-1.32	3.2	1.6	39.7	-0.89	2.7	2.3	12	LZ
TJB4HE	41.6	42.9	43.1	39.6	41.8	-0.54	2.8	1.6	43.2	0.28	2.6	1.4	16	TH
U6RV3T	46.6	49.8 *	46.6	43.2	46.5	1.56	3.3	2.7	46.9	1.56	3.8	2.0	12	LD
UUA4QC	44.1	45.6	43.4	42.5	43.9	0.41	3.4	1.3	43.0	0.24	3.4	1.8	16	LZ
VMMNNR	42.8	44.1	43.3	42.8	43.3	0.13	2.9	0.6	43.2	0.31	3.0	1.4	16	LD
VTB7BN	42.2	46.5	41.8	45.0	43.9	0.39	2.9	2.3	44.6	0.77	3.1	1.8	16	LD
W3UAH2	36.2 *H	39.6 H	37.5 H	37.7 *	37.8	-2.29 *	5.7	1.4	36.4	-2.03 *	5.8	1.5	16	TC
W6L78V	44.6	46.5 H	46.2	42.1	44.8	0.81	4.6	2.0	43.4	0.37	3.6	2.5	12	LZ
WJLZKP	46.0	44.4	45.7	45.4	45.4	1.05	3.9	0.7	44.5	0.75	3.3	1.4	16	LD
X3RY2N	41.5	44.5	42.5	42.7	42.8	-0.08	3.3	1.3	43.2	0.31	3.1	1.5	16	LD
XCXJPQ	35.8 *	34.4 XL	37.2 *	35.3 XL	35.7	-3.22 X	2.1	1.2	35.5	-2.35 *	2.1	1.0	16	TH
XRR9H2	42.3	41.8	42.0	42.5	42.2	-0.37	3.3	0.3 L	41.6	-0.24	3.3	1.1	16	LD
Y4C9MA	38.6	40.0	39.8 L	40.9 L	39.8	-1.39	1.7	0.9	39.4	-0.99	1.8	1.4	16	MB
ZC7DFB	45.1	42.5	41.9	41.8	42.8	-0.07	3.9	1.6	42.5	0.05	4.1	2.3	16	LC
ZHBJQ8	41.9	41.7	41.7	42.0	41.8	-0.52	2.5	0.2 L	41.9	-0.14	2.4	1.1	16	LD
ZN8TGL	47.6	48.1	45.2	44.4	46.3	1.46	2.9	1.8	46.5	1.41	3.8	1.9	16	LZ

Containerboard Interlaboratory Testing Program

Analysis 255

Ring Crush (RCT), 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T822

Consensus (All Labs) Results

Wk Mean	42.54	43.35	42.67	42.38	Month Mean	42.99	Grand Mean	42.34
Avg SDr	3.08	3.55	3.42	3.24	Avg SD	3.32	Avg SD	3.40
SD btwn Labs	2.97	2.52	2.73	1.96	SD btwn Labs	2.28	SD btwn Labs	2.93
Labs Incld	29	27	29	28	SD btwn Wks	2.08	SD btwn Wks	2.30
Labs Excld	1	3	1	2	Labs Incld	28	Labs Incld	29
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TC	TMI Monitor/Compression Tester, 17-37
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)
TX	TMI Digital Crush Tester (model not specified)	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
3DVN49	14.4	14.2	13.8	No Data	14.1	0.59	1.3	0.3	13.9	1.00	1.1	0.3	15	LB
3YDQ7K	13.9	13.3	13.1	13.2	13.4	-0.48	1.1	0.4	13.3	-0.64	1.1	0.5	16	LB
638KPJ	13.2	13.4	12.8	13.7	13.3	-0.65	0.8	0.4	13.3	-0.75	0.8	0.4	16	LB
6D8YYJ	13.3	13.4	13.5	13.2	13.4	-0.52	0.9	0.1	13.3	-0.53	0.8	0.1	16	LB
A4KR2P	12.4	12.4 *	12.0 *	12.0 *	12.2	-2.18 *	1.0	0.2	12.3	-3.73 X	1.0	0.2	16	TT
BANXE7	13.4	13.4	13.8	14.4	13.8	0.07	0.9	0.5	13.7	0.44	1.0	0.4	16	LU
CQ8B74	12.9	13.8	13.2	13.0	13.2	-0.70	1.0	0.4	13.4	-0.32	1.1	0.4	10	LB
DAL2Y7	13.2 L	13.7 L	14.4 L	13.5 L	13.7	-0.02	0.2	0.5	13.6	0.32	0.5	0.8	16	LA
HJBGQ6	14.2	14.6	13.9	14.6	14.3	0.86	1.2	0.3	14.1	1.61	1.2	0.4	16	LU
HLYYUX	14.7	14.1	15.3 *	14.4	14.6	1.29	1.0	0.5	13.9	1.09	1.0	0.6	16	LA
J8VRFT	13.2	13.7 H	13.3	13.1	13.3	-0.56	1.1	0.3	13.0	-1.47	1.0	0.6	16	LZ
JWV7AU	12.6 H	13.2	13.4	14.0 L	13.3	-0.59	1.1	0.6	17.4	11.62 X	1.7	9.1 H	16	LA
K8N83A	13.9	13.4	13.5	13.6	13.6	-0.15	1.0	0.2	13.4	-0.44	1.0	0.6	12	LA
KT8796	14.9	15.2 *	14.6	12.6	14.3	0.88	1.2	1.2 H	16.0	7.40 X	1.3	3.5 H	16	LA
LAQHE4	13.8	14.0	14.2	13.7	13.9	0.29	1.2	0.2	13.6	0.23	1.1	0.3	16	LA
LH4BPZ	12.9	13.6	13.1	13.6	13.3	-0.62	0.8	0.4	13.4	-0.34	0.8	0.4	16	TT
N8VLZU	14.0	14.4	13.8	14.4	14.2	0.65	1.1	0.3	13.5	-0.08	1.1	0.7	16	LH
TPXWUE	15.3	16.7 X	15.1 H	14.8	15.5	2.50 *	1.2	0.9	17.3	11.30 X	1.3	1.2 H	16	XX
TZZ7EV	13.6	13.4	13.0	13.9	13.5	-0.35	1.0	0.4	13.4	-0.32	0.9	0.4	16	LB
U6RV3T	15.1	14.8	14.1	14.7	14.7	1.37	1.1	0.4	14.3	2.42 *	1.1	0.6	12	LA
UUA4QC	12.8	13.0	13.7	12.8	13.1	-0.95	1.0	0.4	13.4	-0.37	1.0	0.7	16	LA
W3UAH2	13.4	12.9	13.2	12.9	13.1	-0.89	1.1	0.3	13.0	-1.64	1.1	0.3	16	TS
W6L78V	15.7 *	14.4	14.3	14.6 H	14.8	1.50	1.1	0.6	13.7	0.55	1.3	0.9	12	LA
W6X624	13.3 L	13.7 L	13.6 L	13.4	13.5	-0.33	0.5	0.2	13.5	-0.10	0.5	0.2	16	LA
WJLZKP	13.5	13.7	14.4	14.6	14.1	0.48	1.0	0.5	13.8	0.94	1.0	0.5	16	LA
X3RY2N	13.8	13.4	13.8	13.8	13.7	-0.01	0.9	0.2	13.6	0.14	1.0	0.4	16	LZ
ZWXGZH	12.6	12.9 H	12.3	12.9	12.7	-1.48	1.2	0.3	12.9	-1.73	1.1	0.4	12	LH

Consensus (All Labs) Results

Wk Mean	13.71	13.69	13.66	13.67	Month Mean	13.72	Grand Mean	13.52
Avg SDr	1.01	1.01	1.06	1.02	Avg SD	1.03	Avg SD	1.00
SD btwn Labs	0.87	0.64	0.77	0.75	SD btwn Labs	0.70	SD btwn Labs	0.34
Labs Incld	27	26	27	26	SD btwn Wks	0.46	SD btwn Wks	0.51
Labs Excld	0	1	0	0	Labs Incld	27	Labs Incld	23
Labs not Rcvd	0	0	0	1				

Key to Instrument Codes Reported by Participants			
LA	L&W Autoline	LB	L&W Model 152
LH	L&W 282	LU	L&W 52 without moisture correction (was 53)
LZ	L&W (model not specified)	TS	TMI Monitor/STFI Compression Tester, 17-33
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab

End of Report